



how differs iCE40-HX4K and iCE40-HX8K when project IceStorm can probably compile 8k LUT for both of them?



>

The iCE40-HX4K and iCE40-HX8K are two different FPGA chips from Lattice Semiconductor's iCE40 series. The difference between these two chips primarily lies in their resources and capabilities.

The iCE40-HX4K has approximately 4K LUTs (Look-Up Tables), while the iCE40-HX8K has approximately 8K LUTs. The "4K" and "8K" in their names represent the number of LUTs in the FPGA. LUTs are fundamental elements of an FPGA's logic resources, and more LUTs allow for a larger, more complex design to be implemented on the FPGA. Therefore, if your design requires more than 4K LUTs, you would need to use the iCE40-HX8K instead of the iCE40-HX4K.

As for the Project IceStorm, it is an open-source project aimed at reverse engineering and providing simple tools for the Lattice iCE40 FPGAs series. While the IceStorm toolchain can target both the iCE40-HX4K and iCE40-HX8K, the actual hardware resources available on the FPGA itself, such as the number of LUTs, would limit what you can implement on the FPGA. Therefore, even though IceStorm can theoretically compile an 8K LUT design for the iCE40-HX4K, it wouldn't be able to fit on the hardware due to the limited resources.

In addition to the number of LUTs, these chips may also differ in other resources, such as the amount of

available memory, the number of I/O pins, PLLs, and so on. Therefore, when choosing between these chips for a particular application, you need to consider all these factors based on the requirements of your design.

---