Expanding the HX5000 ASIC Capabilities

Introducing 1.6V Core Operating Voltage

25 Percent Reduction in Power While Maintaining Operating Speed
Honeywell has created a new HX5000 library delivering reduced power while maintaining speed performance. The 1.6V benefits apply across the library including the standard cells, SRAMs, PLLs and SERDES.

How is this achieved?

Start with the historical manufacturing data from the mature 1.8V library as the baseline and create new models with tighter manufacturing tolerances. All library elements were re-characterized at 1.6V and the new tighter models. These changes enabled the reduction in power without sacrificing performance. The SOI CMOS technology, process, and development tool flow all remain the same.

Verification

Static timing and power simulations were performed on sections of several existing designs and test circuits to verify the performance. Although it is dependent on each individual design, the circuits evaluated averaged more than 25 percent power reduction and demonstrated no appreciable timing degradation.

Application Space

With the high speed data processing required in today’s space electronics systems, design complexity is often constrained more by power consumption than by gate density in an ASIC. The power savings of the 1.6V library can be utilized for nearly all designs targeted for the HX5000 ASIC platform.

Contact Honeywell for more details.

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