Technical Article

An Efficient, Flexible, Single-chip Power Solution for Skylake Processors

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Most processor vendors are approaching the market with multiple versions of processor to address different applications. One example is the Skylake series of processors from Intel.

These multiple versions bring significant challenges to system designers: selecting the right power solution for each and maximizing the efficiency of the system. You must be thinking, “How I can efficiently design a supply that can power various versions?” If this is one of your design concerns, a single-chip solution could be your answer.

The TPS650830 is a single-chip, flexible, efficient power management integrated circuit (PMIC) that can be used with all versions of the Skylake processor. It has several advantages for system designers:

- **System cost savings**
  - Significant space savings versus discrete solutions, with fewer passive components needed.
  - Lower system cost and lower component-management cost versus discrete solutions.
  - Integrated double data rate (DDR) 3L and low-power DDR 3/4 termination voltage (VTT) linear regulator.
- **Flexibility and scalability**
  - Supports type 3 and type 4 printed circuit boards (PCBs).
  - Programmable power-sequence control and monitor for voltage rails and load switches.
  - Full 2S, 3S and 4S battery support.
  - Full narrow-voltage DC/DC (NVDC) and non-NVDC support.
- **Low power consumption**
  - Low power/no-load condition with <100µA when device is off and <1mA in active mode.
  - Supports dynamic voltage scaling (DVS)/decay modes to save power.

This device can help improve the overall efficiency of a system by implementing schemes like adaptive, on-time control and decay modes.

Given these features and flexibility, which system you will design with the TPS650830?

Additional Resources:

- Read this application note on the advantages of highly programmable DC/DC controllers in the TPS65086x PMIC.
- Check out TI's power reference design for the Skylake platform.

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