*Technical Article*

# *Fast Forward Your FPGA Power Design with TI Designs*

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Wouldn't it be much easier if processors and field programmable gate arrays FPGAs all operated from the same voltage and didn't require special features like sequencing and control? Unfortunately, most processors and FPGA require different supply voltages, startup/shutdown sequences and different types of control.

Luckily, power-management ICs integrated circuits (PMICs) can power and control today's advanced processors, FPGAs and systems, making overall system design much simpler.

Now you might be wondering which PMIC can power your system on chip (SoC), and how to get started. Selecting the right power solution for your SoC and system is one of the most common challenges for system designers. So TI released several new tools that enable easier selection, evaluation and design using our PMICs.

Among those tools are TI Designs reference designs, which help engineers start, verify and accelerate designs. Multiple TI Designs have been released showcasing many different SoCs that TI PMICs can powered by– here's a current list:

- TIDA-00478 using the TPS65218 to power the Xilinx Zynq 7010.
- TIDA-00551 using the TPS65911 to power the Xilinx Zynq 7015.
- TIDA-00604 using the TPS65023 to power the Altera Cyclone III.
- TIDA-00605 using the TPS65023 to power the Altera Cyclone IV.
- TIDA-00607 using the TPS65218 to power the Altera MAX 10.
- TIDA-00621 using the TPS65911.

Figure 1 is a block diagram of the TPS65911 powering an ARM Processor. As with all TI PMICs, the TPS65911 is very flexible and can be used across several devices. See Figure 2, which shows the TPS65911 powering the Xilinx Zynq 7015 FPGA.

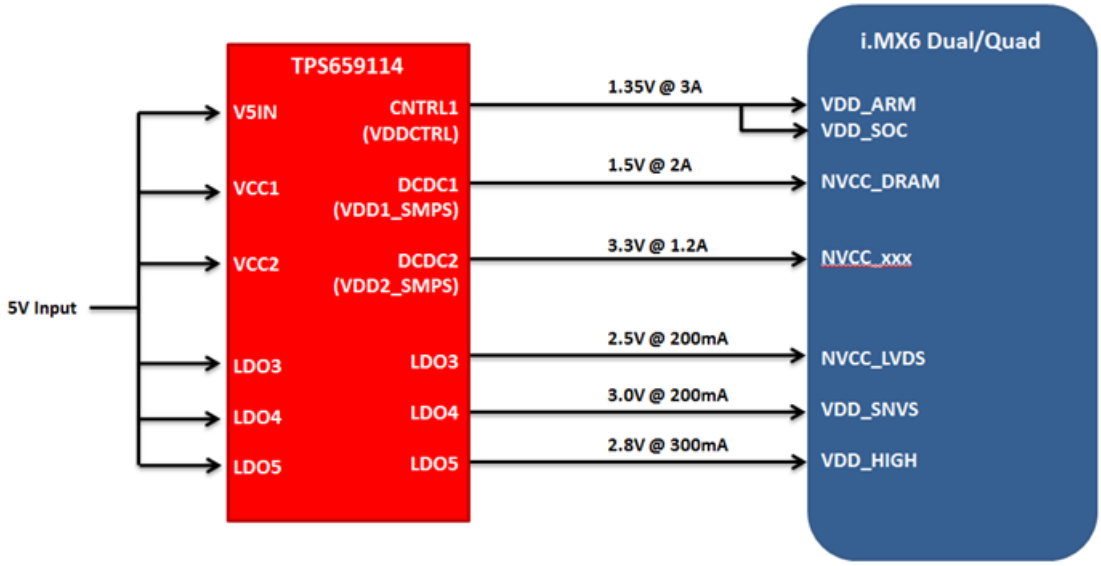


**Figure 1. Block Diagram of the TPS65911**

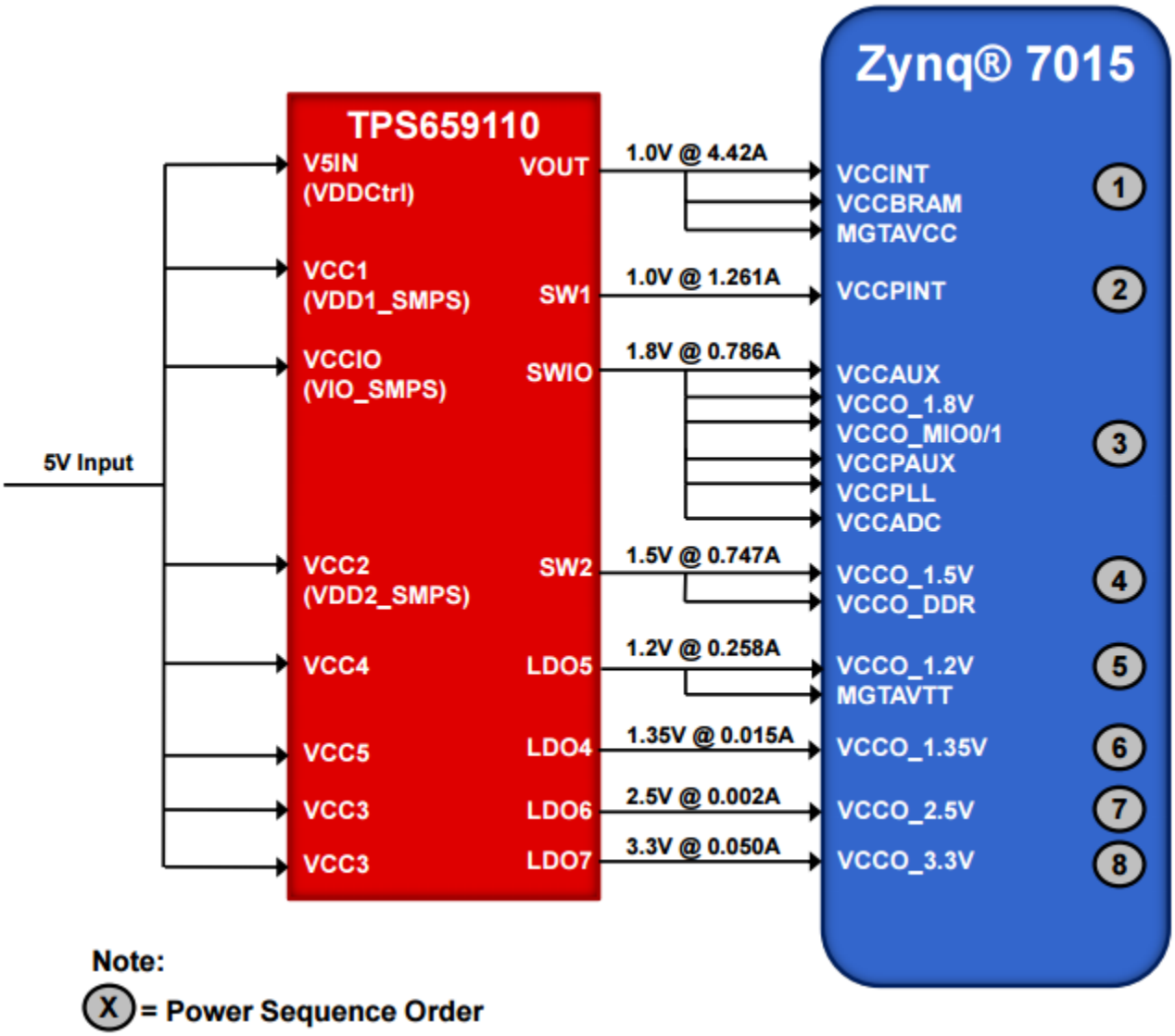


**Figure 2. Block Diagram of the TPS65911 Powering the Xilinx Zynq 7015**

These designs come complete with a schematic, block diagram, printed circuit board (PCB) files and test results. The tests enable engineers to evaluate the performance of the PMIC for the specific SoC they're trying to target and provide example design files that can be leveraged in their own designs. Test results include startup sequencing, load transients, efficiency tests and more like shown in Figure 3.

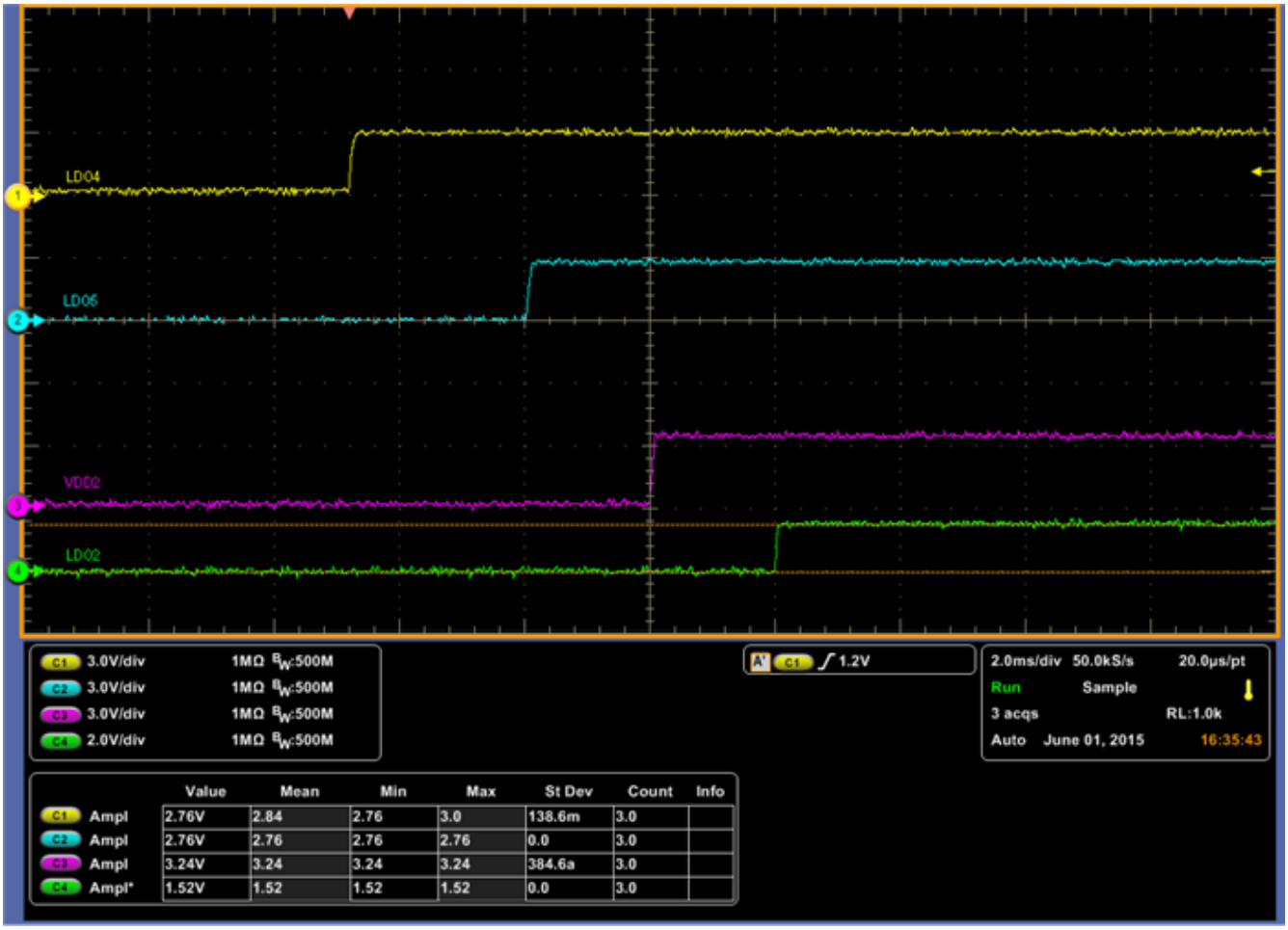


**Figure 3. Example Startup Timing for TPS65911**

To find out more about TI's PMICs, TI Designs, support collateral, technical documentation and more, check out www.ti.com/PMIC. Tell us how you plan to leverage TI Designs to validate and accelerate your next power design using TI PMICs.

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