



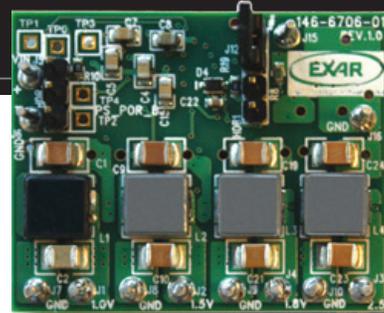
Powering the Zynq®-7000 All Programmable SoC



Xcell Daily Blog

Reference Design Powers Zynq SoC in 1.875 Square Inches

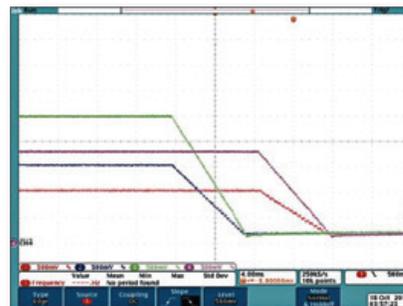
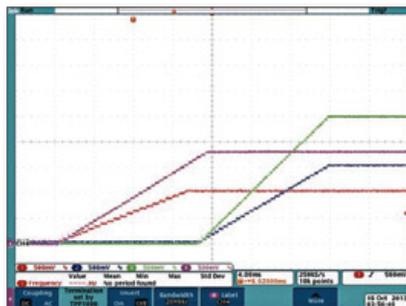
by Steve Leibson
Director of Strategic Marketing and Business Planning at Xilinx



Exar has a slick little quad high-current, programmable, switching power controller IC called the [XRP7714](#) and some recent Googling for “Zynq” uncovered an Exar reference power-supply design that uses the XRP7714 to power a Xilinx Zynq All Programmable SoC. The reference design has a board footprint of 1.875 square inches (1.50 x 1.25 inches) and it looks like (above) on the FET side.

Application note ANP-41 “Powering the Zynq-7000 All Programmable SoC with XRP7714” describes the reference design which uses the XRP7714 to supply 0.75V, 1.0V @ 5A, 1.5V @ 3A, 1.8V @ 1.5A and 2.5V @ 1.5A to the Zynq SoC. The XRP7714 generates these high current supplies through external switching power FETs. An Exar XRP2997 DDR-2/3 SDRAM bus termination regulator provides a 0.75V termination voltage for the SDRAM.

What makes this design somewhat unusual is the XRP7714 digital power controller’s programmability. That programmability—which resides in the power controller’s on-chip, non-volatile configuration memory—includes the ability to set supply voltages and to dial in independent power supply sequencing and supply-rail ramp-up and ramp-down slew rates to meet the requirements of the attached circuitry. In this case, that’s the Zynq SoC. On the left below is a graphical illustration of the power-on supply voltage ramps for the Zynq SoC reference design. And on the right is the ramp-down profile for the Zynq SoC.



In addition, the XRP7714 has an I²C interface port so the host Zynq SoC can talk to the power supply, if needed, through a couple of spare I/O pins.

<https://forums.xilinx.com/t5/Xcell-Daily-Blog/Reference-design-powers-Zynq-SoC-in-1-875-square-inches/ba-p/409547>

Exar Corporation reserves the right to make changes to the products contained in this publication in order to improve design, performance or reliability. Exar Corporation conveys no license under any patent or other right and makes no representation that the circuits are free of patent infringement. While the information in this publication has been carefully checked, no responsibility, however, is assumed for inaccuracies.

Reproduction, in part or whole, without the prior written consent of Exar Corporation is prohibited. Exar, XR and the XR logo are registered trademarks of Exar Corporation. All other trademarks are the property of their respective owners.

©2016 Exar Corporation

48760 Kato Road
Fremont, CA 94538
USA

Tel.: +1 (510) 668-7000
Fax: +1 (510) 668-7001
Email: powertechsupport@exar.com

www.exar.com