

Power Two Xilinx™ LX240 Virtex-6™ Devices

This reference design is intended to help designers wishing to use two of the new Virtex-6 LX240 FPGA along with DDR memory and other optional circuitry in their designs. It provides nine rails of lower voltage with an input of 12 volts. The use of PTH T2 modules provides a high-performance solution for good transient response and tight regulation while conserving valuable board space.

1 Introduction

This reference design is for powering the new Virtex-6 LX240 from a 12-V bus. It uses the Texas Instruments PTH family of modular power solutions to save design time and space as these parts take advantage of both sides of the board. This design uses the following parts for each rail:

- PTH08T240 for 1-V core or VCCint rail 1
- PTH08T240 for 2.5-V for the VCCaux rail 2
- PTH08T230 for 1.5-V for the VCCO DDR3 rail 3
- TPS51200 for DDR active termination for 1/2 VCCO rail 4
- PTH08000 for 1.8-V Ethernet Phy rail 5
- PTH08000 for 3.3-V for I/O SFP rail 6
- PTH08T220 for 1-V, low-noise GTP core rail 7
- PTH08T220 for 1.2-V GTP termination rail 8
- PTH08T240 for 3.3-V FMC connector rail 9
- TPS3808 SVS Reset for sequencing

2 Power Requirements

The power requirements for the XC6VLX240T are listed in the following table.

For more information and other reference designs, visit www.ti.com/processorpower and www.ti.com/xilinxfpga

Core, I/O	Pin Name	Voltage (V)	I _{max} (mA)	Tolerance	Sequencing Order	Timing Delay
Core	VCCint	1/0.9	10000	±5	1	VCCint, Vaux, Vcco: 0.20 to 50 ms
I/O	Vcco	1.2/1.5 1.8/2.5	6000	±5	1	
I/O	VCCaux	2.5	1500	±5		

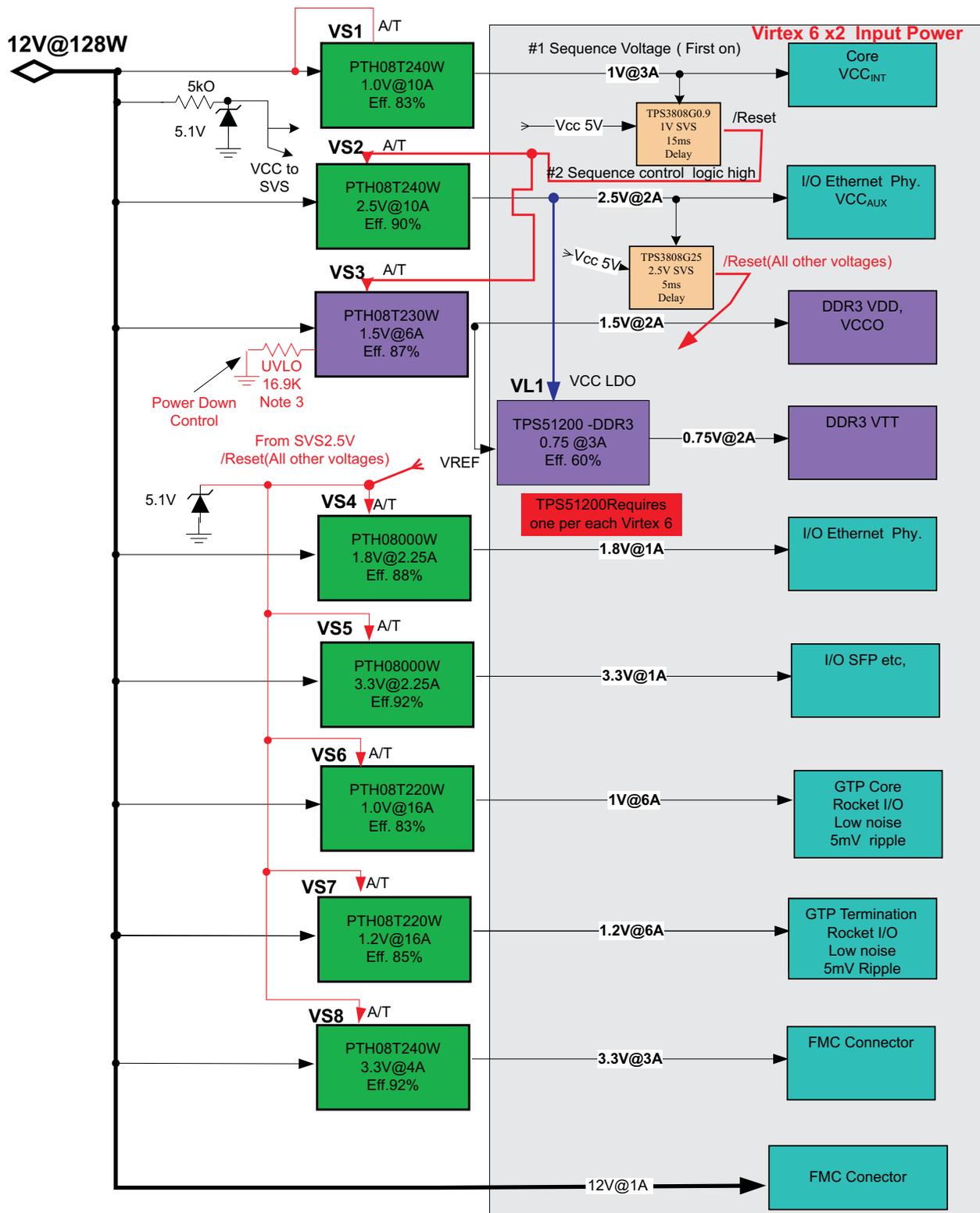
See how T2 modules can help reduce the amount of onboard capacitance required:
<http://focus.ti.com/analog/docs/turbotranssearch.tsp?familyId=561>

See the complete SVS Reset offering at:

<http://focus-webapps.ti.com/general/docs/sitesearch/searchdevice.tsp;jsessionid=WE4XG1UP3N1SJQC1JAVR3KQ?partNumber=TPS3808>

View the online information on DDR termination at:

<http://focus.ti.com/docs/prod/folders/print/tps51200.html>



- (1) The sequence for V6 power is VCCINT (1 V), VCCAUX (2.5 V), and VCCO (1.5 V and 2.5 V). All rails including 3.3-V rail must be last to power up.
- (2) A/T = auto track function
- (3) The power-down sequence is VCCO (1.5 V) power down first, VCCAUX (2.5 V) power down second. UVLO resistor (16.9 kΩ) (1.5 V) VCCO detects input voltage droop to 8 V. VCCAUX (2.5 V) is second detected input voltage droop to 4.3 V.

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