XILINX ARTIX®-7 (LOW CURRENT) POWER AND TIMING: OVERVIEW

Xilinx® Artix®-7 devices provide the highest performance-per-watt fabric, transceiver line rates, DSP processing, and AMS integration in a cost-optimized FPGA. Featuring the MicroBlaze™ soft processor and 1,066Mb/s DDR3 support, this family is the best value for a variety of cost and power-sensitive applications, such as software-defined radios, machine vision cameras, and low-end wireless backhaul. The high current case is for designs >4A, and the low current case is for those <4A.

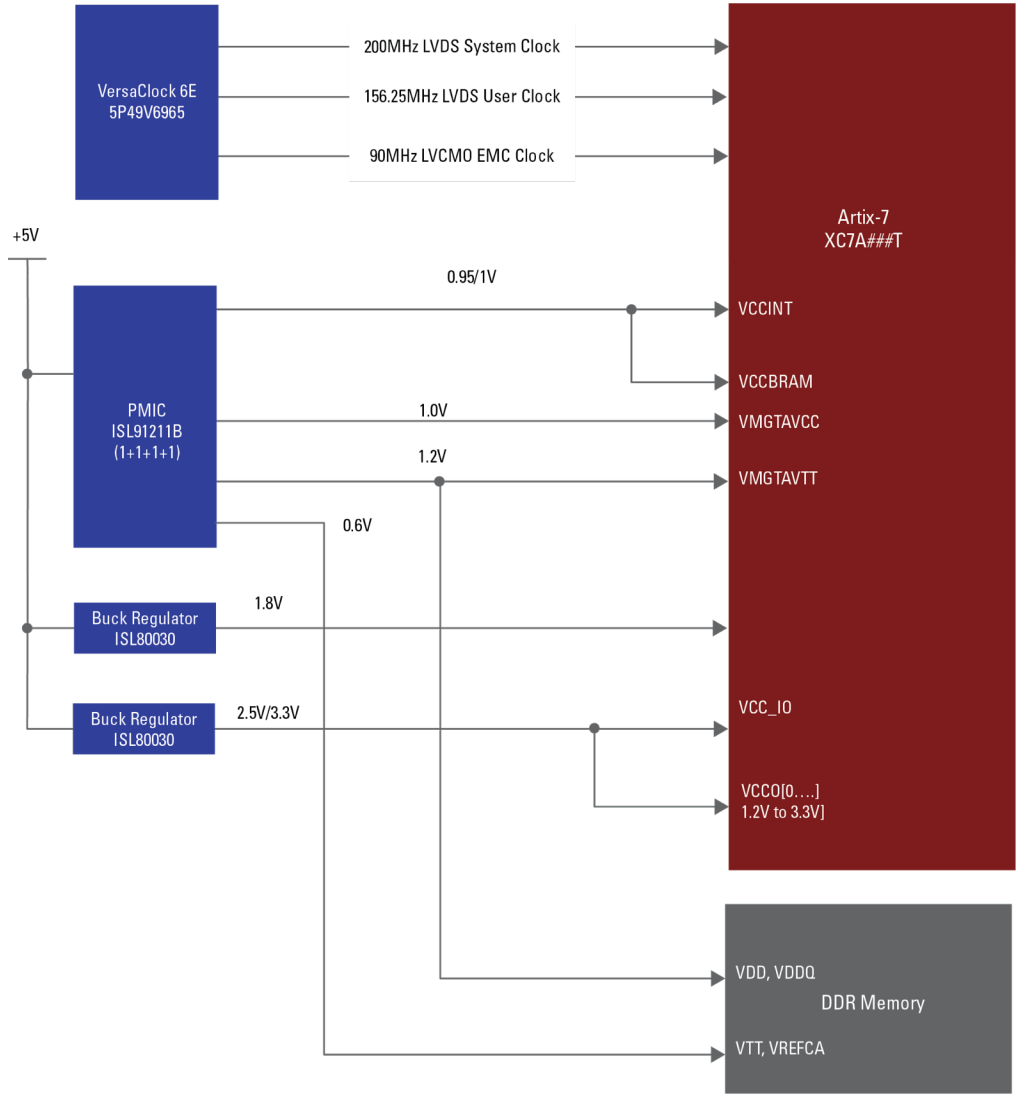
This winning combination highlights the power devices on the reference board for the Xilinx® Artix®-7 family and suggested timing solutions from Renesas.

Visit the Artix-7 power solutions page to learn more.

Key Features:

- Pre-programmed PMICs specifically designed to meet this use case and provide flexible power solutions
- VersaClock® clocks capable of 350MHz outputs and low jitter attenuation
- Regulators provide a simple voltage reference solution for other rails

XILINX ARTIX-7 (LOW CURRENT) POWER AND TIMING: BLOCK DIAGRAM



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XILINX ARTIX-7 (LOW CURRENT) POWER AND TIMING: SUMMARY

- **System benefits**
  - Multiple PMICs with programmable outputs to reduce board space and manage power requirements
  - High performance clocking meets PCIe® Gen1/2/3, USB 3.0, 1/10 GbE clock requirements

Device Category	P/N	Key Features
Power	ISL91211B	Quad Output Power Management IC
Power	ISL80030	3A Synchronous Buck Converter in 2x2 DFN Package
Timing	5P49V6965	VersaClock® 6E Programmable Clock Generator

ISL91211A/B – Triple/Quad Output Power Management IC

Client/Enterprise/Data Center SSD, NAS, Optical Transceiver Modules, custom power

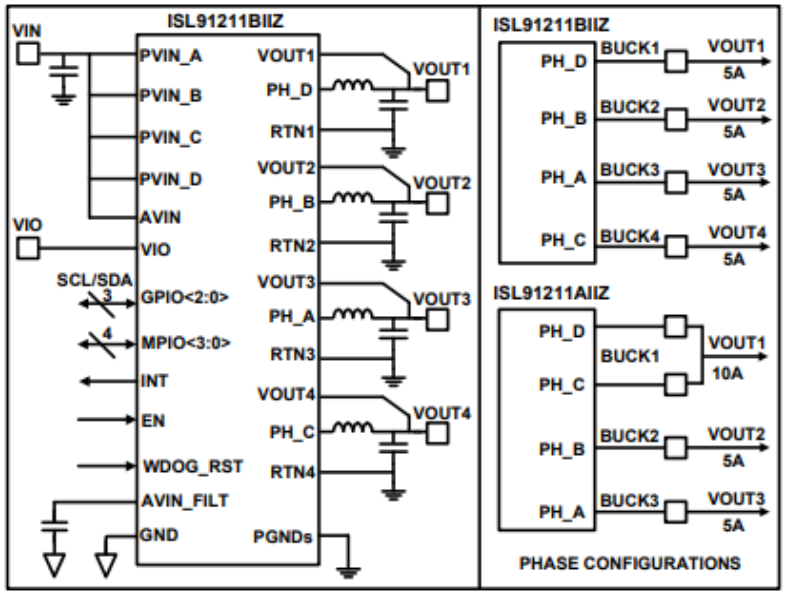
Custom Power

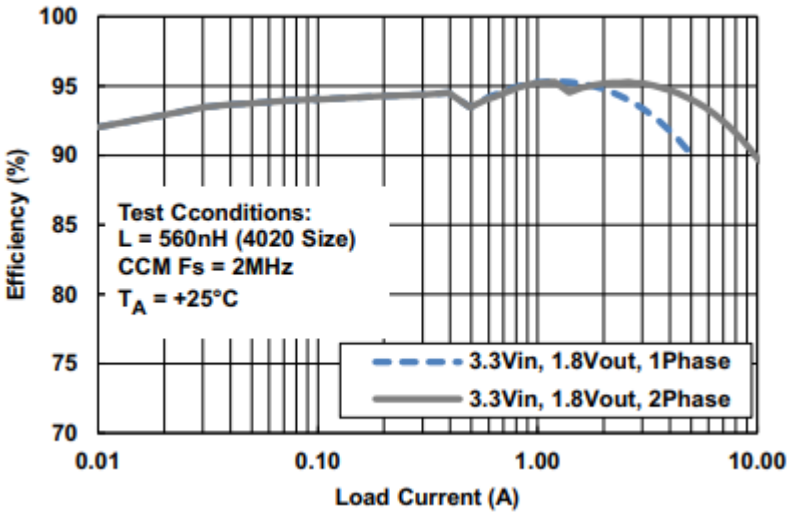
- Triple output 2+1+1 phases (ISL91211A) or quad output single phase (ISL91211B)
- I2C programmable output from 0.3V to 2V
- 5V to 5.5V supply voltage
- 5A per phase output current capability

High Efficiency and Accuracy

- Low IQ in low power mode
- High efficiency (94.7% for 3.8VIN/1.8VOUT)
- ±0.7% system accuracy, remote voltage sensing
- Small solution size

Part #	Package
ISL91211AIIZ-T	54L 3.67x2.55mm WLCSP
ISL91211BIIZ-T	54L 3.67x2.55mm WLCSP





BIG IDEAS FOR EVERY SPACE

ISL80030/A – 3A Synchronous Buck Converter

General purpose POL DC/DC, FPGA Power, Industrial/Medical equipment

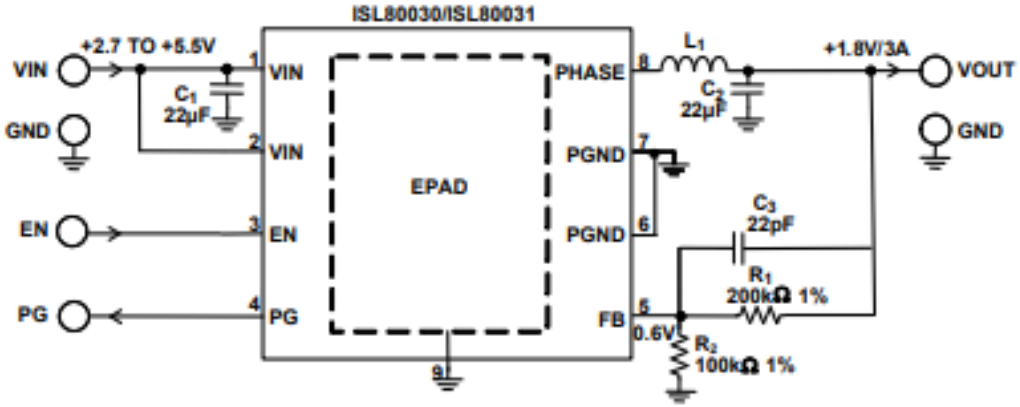
Flexible Power in a small package

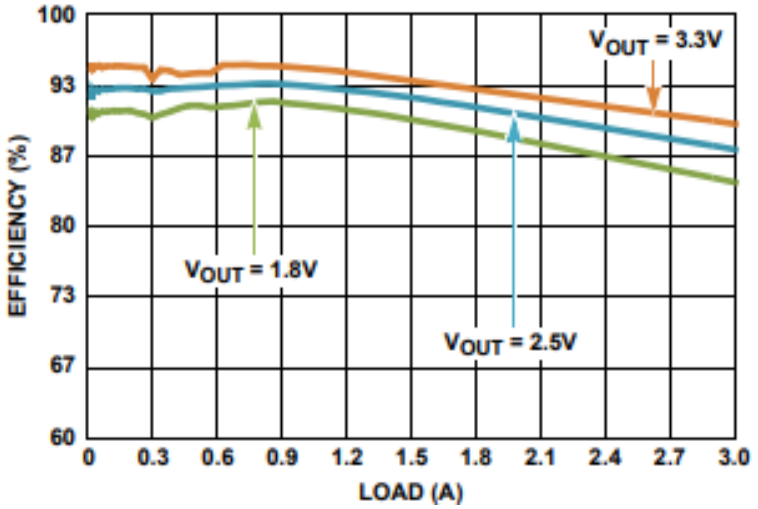
- Input voltage range: 2.7V to 5.5V
- Current out max: 3A
- Switching frequency is 1MHz (80030) or 2MHz (80030A)
- Very low r_{DS}(ON) MOSFETs to maximize efficiency

Robust Design

- Negative current protection
- Operates at 100% duty cycle
- Overcurrent and short circuit protection
- Over-temperature/thermal protection

Part #	Package
ISL80030FRZ-T7A	8L 2x2mm DFN
ISL80030AFRZ-T7A	8L 2x2mm DFN





BIG IDEAS FOR EVERY SPACE

5P49V6965 - LOW PHASE JITTER, SMALL SIZE

VersaClock 6E Series – Flexible Programmable Clock

Very Low Phase Jitter

- <500 fs rms phase jitter
- w/o trading off low power, <50mA core current consumption

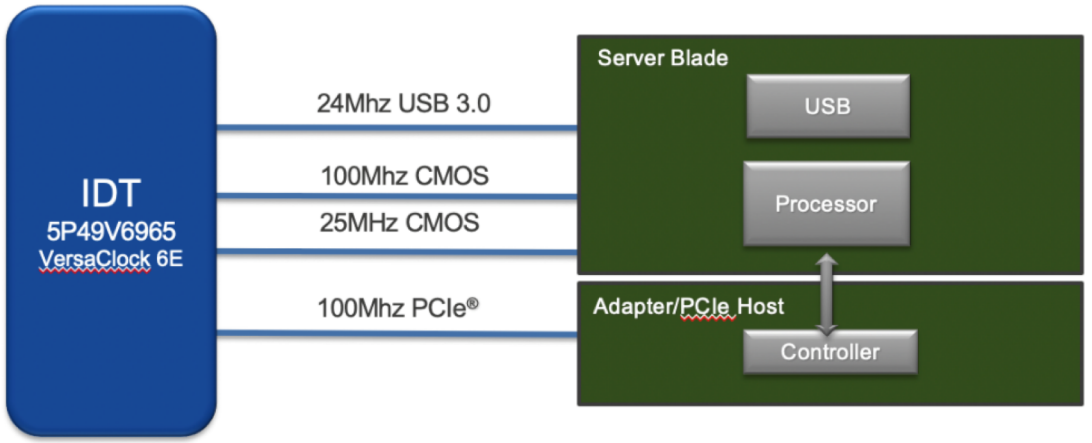
Wide Support

- Meets PCIe Gen 1/2/3/4, USB 3.0, 1/10 GbE clock
- Flexible 1.8V, 2.5V, 3.3V power-rails
- Supports both crystal (8MHz–40MHz) and external clock input(1MHz–350MHz)

Configurable

- 2 programmable I²C addresses allowing multiple devices to be used in same system.
- 4 independent frequencies with 0.001MHz–350MHz output range

Part #	Pack	Package
5P49V6965A000NLGI	Tray	24L 4x4mm VFQFPN
5P49V6965A000NLGI8	Reel	24L 4x4mm VFQFPN



Symbol	Parameter	Conditions	Minimum	Typical	Maximum	Units
J_{CY-CY}	Cycle to Cycle Jitter	LVCMOS 3.3V ±5%, -40°C–90°C.		5	30	ps
		All differential outputs 3.3V ±5%, -40°C–90°C.		25	35	ps
J_{PK-PK}	Period Jitter	LVCMOS 3.3V ±5%, -40°C–90°C.		28	40	ps
		All differential outputs 3.3V ±5%, -40°C–90°C.		4	30	ps
J_{RMS}	RMS Phase Jitter (12kHz–20MHz)	LVCMOS 3.3V ±5%, -40°C–90°C.		0.3		ps
		All differential outputs 3.3V ±5%, -40°C–90°C.		0.5		ps

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