

# Power Solutions for XILINX FPGAs & SoCs

## Wide Selection of DC/DC power products for FPGAs

Infineon has a wide range of DC/DC power products for Xilinx FPGA/SoC families: Artix, Zynq, Spartan, Kintex, Virtex.

Shown below is are designs options for Kintex UltraScale, 20nm MPSoC Family.

### HIGHLIGHTS

#### Scalable Design Options for Kintex from KCU040 to KCU115

There are several variants of the Kintex UltraScale where the core rail can vary from 4A to 30A+. Combinations of Analog and Digital POL DC/DC with Integrated FETs can be combined to design a flexible solutions.

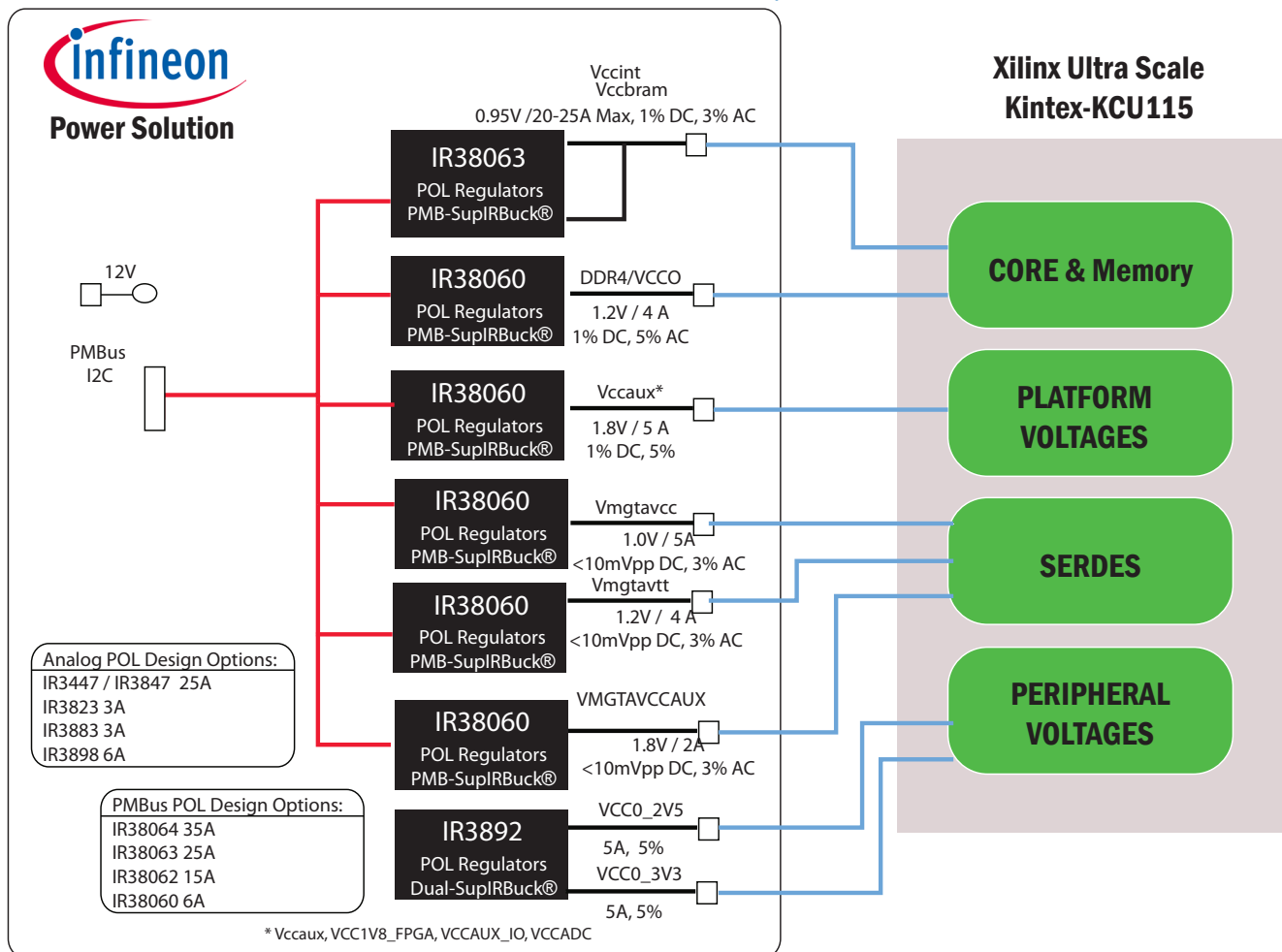
## Kintex UltraScale 20nm

- IR38063 / 64 at 25A / 35A Integrated FET PMBus POL
- Delivers excellent efficient at best thermal ratings
  - High DC accuracy <1%
  - PMBus capability

- IR3891 Dual 3A + 3A POL
- Low ripple Regulator for SERDES voltages
  - Space saving package for two full regulators with integrated FETs

- IR38060 6A Integrated FET PMBus POL
- Delivers excellent efficient at best thermal ratings
  - High DC accuracy <1%
  - PMBus capability

Higher current Kintex UltraScale Series examples: KCU115



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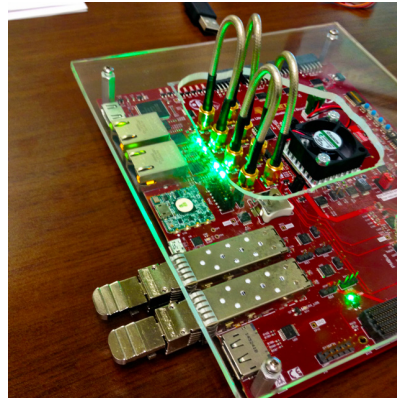
## Proven power designs - UltraScale Kintex KCU040

Infineon presents first PMBus POL solution to highlight achievable designs for PMBus 1.2 - margin, telemetry, voltage setting and sequencing across all POL devices. The low noise power design is also proven for SERDES test for PRBS31 yielding zero bit error (BERR).

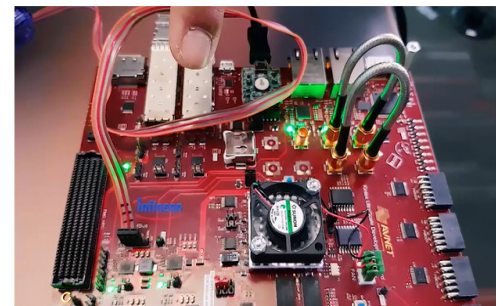
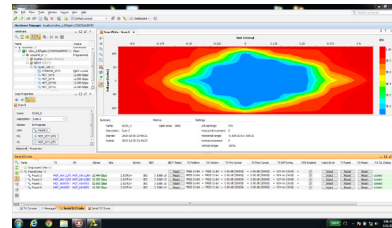
For more information, links below:

- > [Avnet EMEA - Board Design Info](#)
- > [Xilinx Blog](#)
- > [Xilinx Avnet Reference Design](#)
- > [Avnet Americas - Board Design Info](#)

CLICK picture see Video



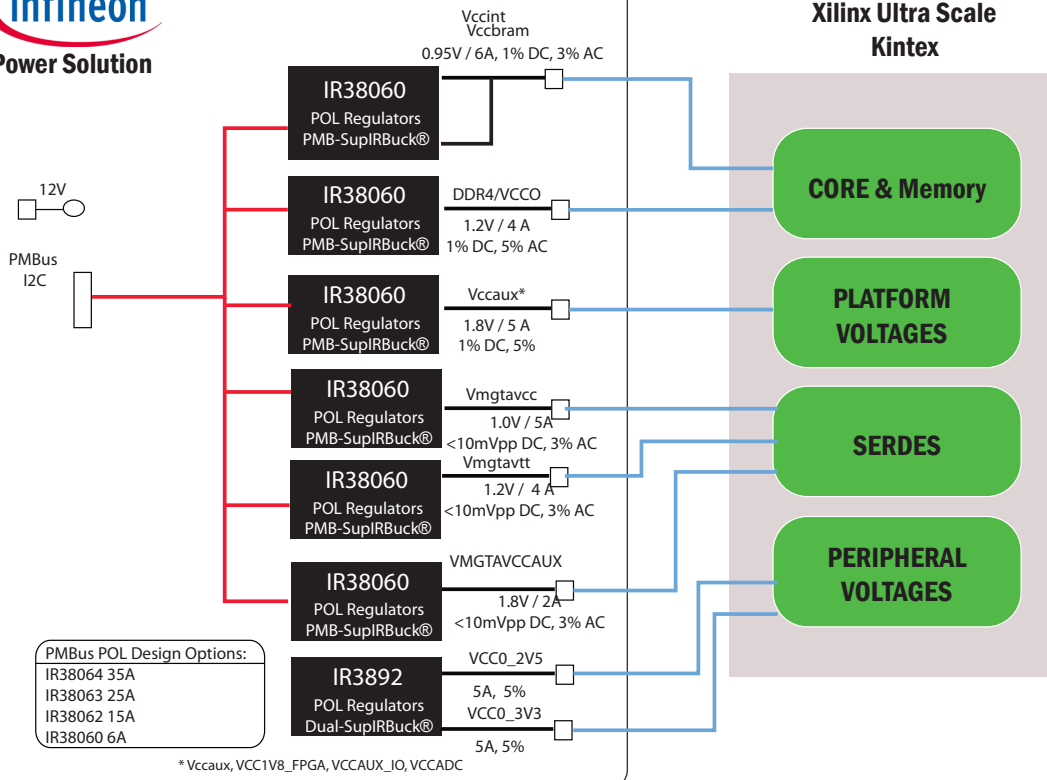
## Kintex UltraScale 20nm



Xilinx Avnet UltraScale Reference Design Platform: AES-KU040-DB-G



Power Solution



Xilinx Ultra Scale Kintex

- CORE & Memory
- PLATFORM VOLTAGES
- SERDES
- PERIPHERAL VOLTAGES

## DESIGN NOTES

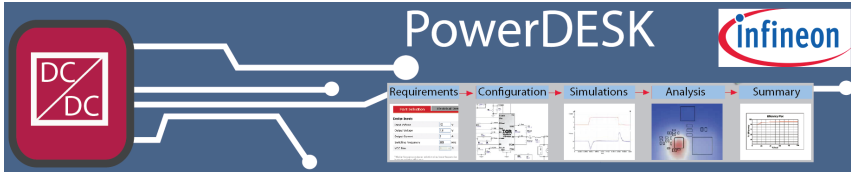
- 1) Proven power design on Avnet Ultra Scale Kintex design. For schematics and layout files go to [www.infineon.com/xilinx](http://www.infineon.com/xilinx) see Kintex 10W design
- 2) Digital POL utilizing PMBus 1.2 command sets.
- 3) The SERDES power solutions are proven designs on actual reference designs delivering low noise, low ripple design up to 12.Gbps per lane with zero bit error.
- 4) If lower current rails are necessary, the IR38060 can be replaced with IR3823 (3A), IR3883 (3A), IR3897 (4A), IR3898 (6A).

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## Kintex UltraScale 20nm

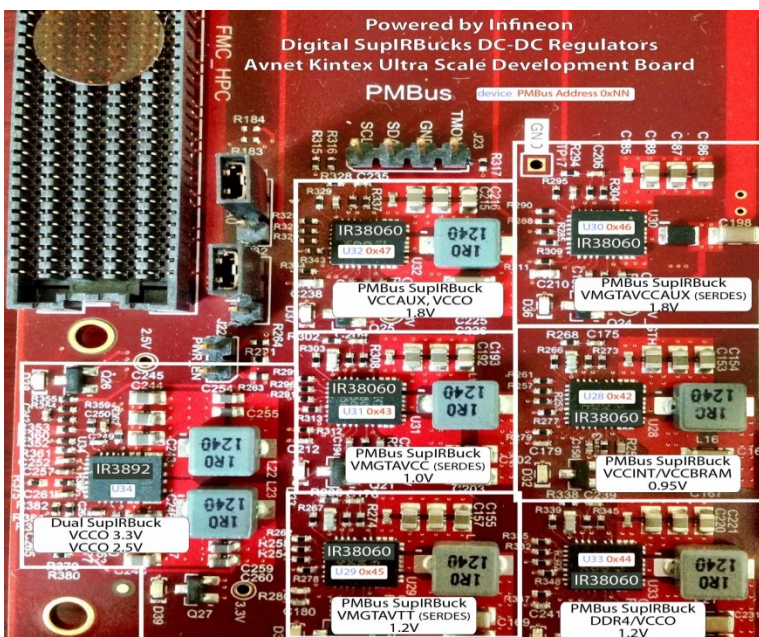
### PowerDESK DESIGN TOOL

The table below list the PowerDESK Design Tool files for each of the regulators. Click the Device and URL in the table below to view the datasheets & design: schematics, components optimization.



<https://infineon.transim.com/powerdesk>

FPGA Power Section	Description	Device	Schematic Symbol	Address Location PMBus/I2C	URL
Core Voltage	VCCINT / VCCBRAM 0.95V	IR38060	U28	0x42 / 0x12	<a href="http://go.transim.com/ffI">http://go.transim.com/ffI</a>
Platform Voltage	VCCAUX, VCCO 1.8V	IR38060	U32	0x47 / 0x17	<a href="http://go.transim.com/t1M">http://go.transim.com/t1M</a>
Platform Voltage	DDR4 / VCCO 1.2V	IR38060	U33	0x44 / 0x14	<a href="http://go.transim.com/tV6">http://go.transim.com/tV6</a>
SERDES Voltage	VMGTAVCC 1.0V	IR38060	U31	0x43 / 0x13	Coming soon
SERDES Voltage	VMGTAVTT 1.2V	IR38060	U29	0x45 / 0x15	Coming soon
SERDES Voltage	VMGTAVCCAUX 1.8V	IR38060	U30	0x46 / 0x16	<a href="http://go.transim.com/r3R">http://go.transim.com/r3R</a>
Peripheral Voltages	VCCO 3.3V, VCCO 2.5V	IR3892	U34	N/A	<a href="http://go.transim.com/xjM">http://go.transim.com/xjM</a>



### Design Notes:

1) Proven power design on Avnet Ultra Scale Kintex design. For schematics and layout files go to

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see Kintex 10W design

Power Solution Ultra Scale Kintex 20nm

### Highlights:

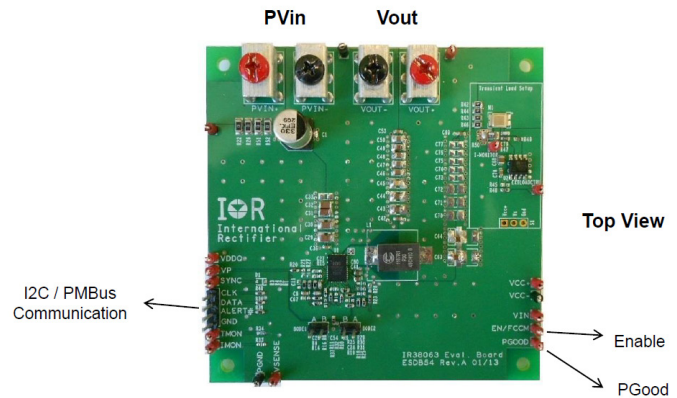
- 8 Critical Voltage rails, optimized design
- High Efficiency: >90%
- High Density: Integrated POL+FET+PMBus
- Low Noise: <<10mVpp SERDES rails
- PMBus Sequencing, Fault Mgt, Telemetry

# Power Solutions for Xilinx FPGAs & SoCs

## EVALUATION BOARDS AVAILABLE

## Kintex UltraScale 20nm

Part	Evaluation Board
IR38063	IRDC38063 <a href="#">view</a>
IR38060	IRDC38060 <a href="#">view</a>
IR3892	IRDC3892 <a href="#">view</a>



## DC/DC Products - All Xilinx FPGAs

	Zynq	Artix	Kintex	Virtex
Core Voltage	Analog: IR3447/48 IR3895 IR3899 IR3898 IR3897 IR3891 IR3823  Digital: IR38060 IR38063 IR38064 IRPS5401	Analog: IR3897 IR3891  Digital: IR38060	Analog: IR3899 IR3898 IR3897 IR3823  Digital: IR38060 IR38062 IR38063	Digital: <a href="#">IR36021</a> , <a href="#">IR3820x</a> <a href="#">IR3550</a> , <a href="#">IR3742</a>  Analog: IR3847 IR3848  Digital: IR38063 IR38064
Platform Voltages	Analog: IR3891 IR3897 IR3823 IR3883	Analog: IR3891	Analog: IR3892 IR3891	Analog: IR3892 IR3891 IR3899 IR3894
SERDES Voltages	Analog: IR3897 IR3892 IR3891 IR3823  Digital: IR38060	IR3891 IR3823	Analog: IR3897 IR3892 IR3891 IR3823	Analog: IR3847 IR3846  Digital: IR38062 IR38063
Peripheral Voltages	Analog IR3883	Analog IR3883	Analog IR3883	Analog IR3883 IR3899 IR3894