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 are design options for Zynq UltraScale+, 16nm MPSoC Family.

HIGHLIGHTS
Scalable Design Options for Zynq UltraScale+ from ZU02 to ZU19

There are 11 variants of the Zynq 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.

Zynq UltraScale+ 16nm MPSoC

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

IR3823 3A Single POL for peripheral voltages: 3.3V, 1.2V, 1.8V, 2.5V from 1A to 3A

Higher current Zynq Ultra Scale+ Series examples: ZUEG15, ZEUG11 and higher
Power Solutions for XILINX FPGAs & SoCs

Compact Power Design Options for Zynq UltraScale+
from ZU02 to ZU4

Infineon preview of DC/DC Multi-output Regulators,
IRPS5401 below offers highly integrated solution

DESIGN NOTES

The IRPS5401 is a complete power management unit delivering up to 5 output voltages to processors, FPGA's and other multi-rail power systems. Four high efficiency configurable switching regulators and a Source/Sink Linear regulator provide the typical rails required such as core voltage, memory voltage and I/O voltages.

ADVANCED INFORMATION

Zynq UltraScale+ 16nm
MPSoC

0.85V
1.8V
3.3V
12V

1.2V

0.85V

0.6V
1.2V

1.8V

IRPS5401
5 Output
PMBus PMIC
7mm x 7mm

VCC_INT
VCCAUX, Enet, USB
VCC_DDR, DDR4_ext
VCC_DDR, DDR4_ext

IRPS5401
5 Output
PMBus PMIC
7mm x 7mm

VCC_PSINT
VCC_PSAUX / PSIO / PSADC
VCC_DDR, DDR4_ext
VCC_DDR, DDR4_ext

LDO
LDO

12V

PMBus
I2C

PMBus
I2C

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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.

### PowerDESK DESIGN TOOL

https://infineon.transim.com/powerdesk

<table>
<thead>
<tr>
<th>FPGA Power Section</th>
<th>Description</th>
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| Core Voltage       | Vcore 0.85V | Digital: IR38064 – 35A  
IR38063 – 25A  
IR38062 – 15A | IR38064 [link](http://go.transim.com/8MW) 
IR38063 [link](http://go.transim.com/TzC) |
| Core Voltage       | Vcore 0.85V | Analog: IR3447 – 25A  
IR3895 – 16A | Analog: IR3447 coming soon 
IR3895 coming soon |
| SERDES Voltage     | VMGTAVCC 0.9V / 2A | Analog: IR3891 – 2x -4A* | IR3891 [link](http://go.transim.com/SCe) |
| SERDES Voltage     | VMGTAVCCAVTT, VCCPLL 1.2V / 2A | Analog: IR3823 – 3A | IR3883 coming soon |
| Platform Voltage   | VMGTAVCCAUX 1.8V / <1A | Analog: IR3823 – 3A | IR3883 coming soon |
| Platform Voltage   | VCCO 1.5V / 1A | Analog: IR3823 – 3A  
IR3883 – 3A | IR3823 [link](http://go.transim.com/iaz)  
IR3883 coming soon |
| Platform Voltage   | VCCAUX / VCCPAUX 1.8V / 2A | Analog: IR3823 – 3A  
IR3883 – 3A | IR3823 [link](http://go.transim.com/iaz)  
IR3883 coming soon |

**Design Notes:**

1) IR38064/38063 are PMBus SupIRBucks. Excellent thermal rating capability at 25A-35A.

2) IR3447 / IR3848 / IR3895 are good analog alternatives also with excellent thermal capability at 25A-35A.

3) * IR3891 is a Dual Output DC/DC, ideal for space savings. Good for low noise SERDES. IR3891 (dual) with one resistor change, Rf2, get voltages: 1.0V, 0.95V, 0.9V paired with 1.8V VCCAUX. Same as Artix Design.
## Power Solutions for Xilinx FPGAs & SoCs

### EVALUATION BOARDS AVAILABLE

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<td>IR3895</td>
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<td>IR3891</td>
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<tr>
<td>IR3823</td>
<td>IRDC3823 view</td>
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<tr>
<td>IR3883</td>
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### DC/DC Products - All Xilinx FPGAs

#### Zynq UltraScale+ 16nm MPSoC

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<td>Analog: IR3897, IR3891</td>
<td>Analog: IR3899, IR3898, IR3897, IR3823</td>
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