



**Intelligent Solutions
for Complex Power Systems**



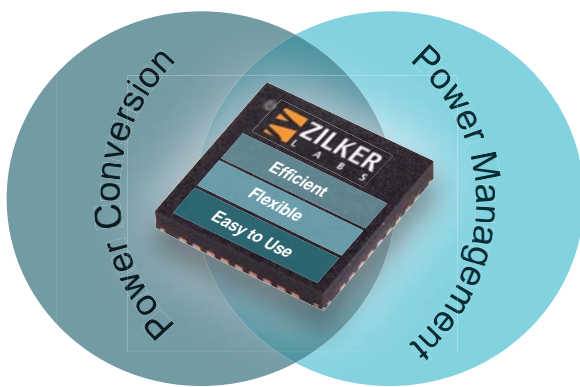
September 2009

Building an Intelligent Power System

Today's advanced electronic systems have complex power requirements involving multiple rails at different voltages. Intersil's Zilker Labs devices are uniquely suited to solve these complex system power challenges. They are highly-integrated, high-performance digital power solutions designed to be universal building blocks that can be easily combined and adapted to varying system requirements.

Zilker Labs products combine a world-class digital power conversion architecture with power management logic in a single IC. They require minimal external circuitry, reducing board space requirements and simplifying the design process. The patented Zilker Labs technology from Intersil builds intelligence into the silicon, allowing the devices to be easily configured through simple pin-strap options or by using PMBus commands with no programming required. The Digital-DC product family addresses a wide range of operating conditions allowing system designers to complete designs using parts from a single supplier.

Only Zilker Labs products offer systems designers the ability to easily address a full range of power requirements with efficient, flexible, easy-to-use digital power conversion + management ICs.

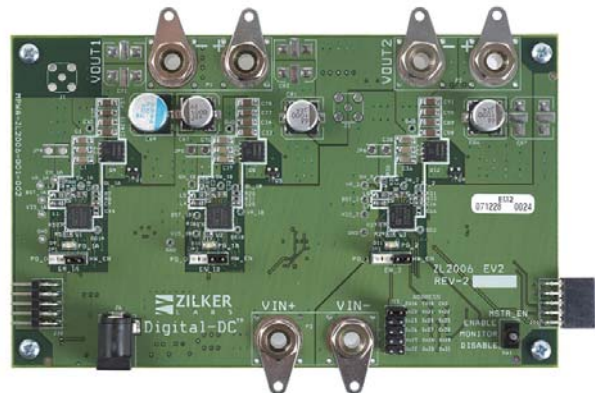


System Benefits

- Easy-to-design digital solution
- Flexible solution can be used in a wide variety of applications
- Seamlessly combine devices to address a full range of system requirements
- High efficiency and fast transient response
- Adaptive performance optimization to increase efficiency
- Integrated power and fault management without additional components
- Easily configured by simple pin-straps, resistor connections or via I²C/SMBus interface
- Smaller footprint, fewer components

Target Applications

- Telecom/datacom equipment
- Server/storage equipment
- Industrial computer/control equipment
- Test & measurement equipment
- FPGA/DSP/ASIC power supplies
- DDR memory power supplies
- Power supply modules
- 5V & 12V distributed power systems



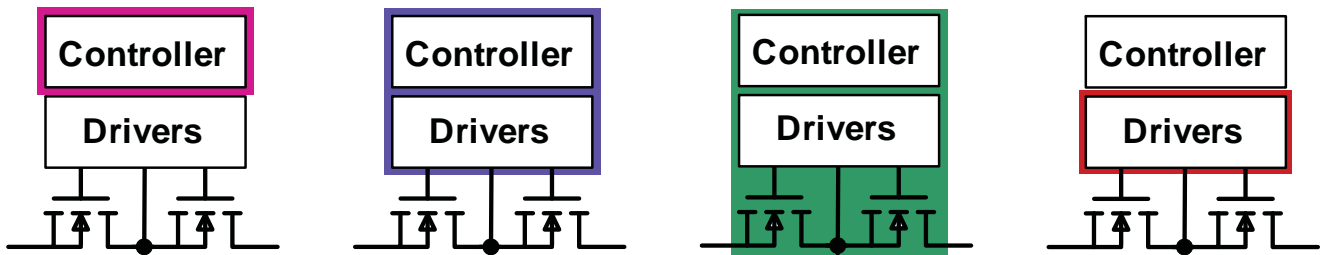
Digital-DC Products

Power Conversion Features

- Synchronous step-down conversion
- High output current (>40A per phase)
- Wide operating range
- $\pm 1\%$ output voltage accuracy
- External clock synchronization with phase interleaving
- Adaptive efficiency optimization
- Simple device configuration using pin-straps, resistor connections and I²C/SMBus interface
- Small size, few components

Power Management Features

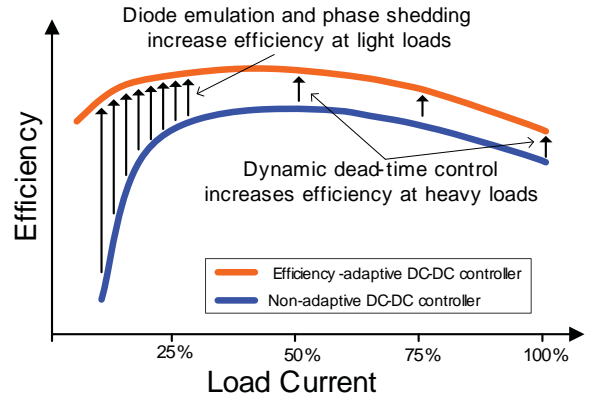
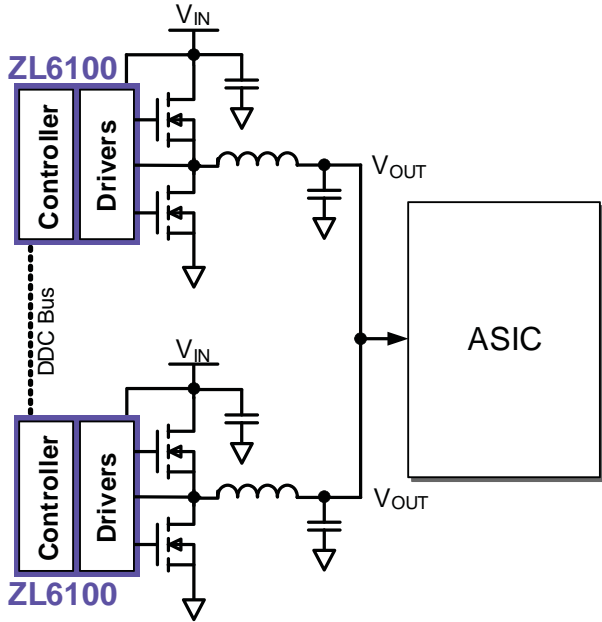
- Voltage tracking (50% / 100%) and margining (5% / 10%)
- Power-up/down sequencing
- Voltage, current and temperature monitoring
- Extensive fault management
 - Configurable fault response
 - Fault spreading between devices
 - Snapshot™ parametric data capture
- PMBus compliant command set
- DDC bus for interoperability
- On-chip non-volatile memory (NVM)



Controller Description	I _{OUT} Max	V _{IN} Range	V _{OUT} Range	F _{SW} Max	Power Stage Integration
ZL2008 Adaptive Digital DC-DC Controller with Pin-strap Compensation	>40A	3.0 - 14V	0.54 - 5.5V	1.4MHZ	Drivers
ZL6100 Adaptive Digital DC-DC Controller with Driver and Current Sharing	>40A	3.0 - 14V	0.54 - 5.5V	1.4MHZ	Drivers
ZL6105 Adaptive Digital DC-DC Controller with Auto Compensation	>40A	3.0 - 14V	0.54 - 5.5V	1.4MHZ	Drivers
ZL8100 Adaptive Digital DC-DC Controller with Current Sharing	>40A	4.5 - 14V	0.54 - 4.0V	1.4MHZ	--
ZL2103 Integrated Digital DC-DC Converter	3A	4.5 - 14V	0.54 - 5.5V	1.2MHZ	Drivers, MOSFETs
ZL2106 Integrated Digital DC-DC Converter	6A	4.5 - 14V	0.54 - 5.5V	1.0MHZ	Drivers, MOSFETs
Driver Description	High-side Current (Source/Sink)	Low-side Current (Source/Sink)	System V _{IN} Range	Gate Drive VDD Range	FSW Max
ZL1505 Synchronous MOSFET drivers	3A / 3A	4A / 5A	3 - 25.5V	4.5 - 7.5V	1.4MHZ

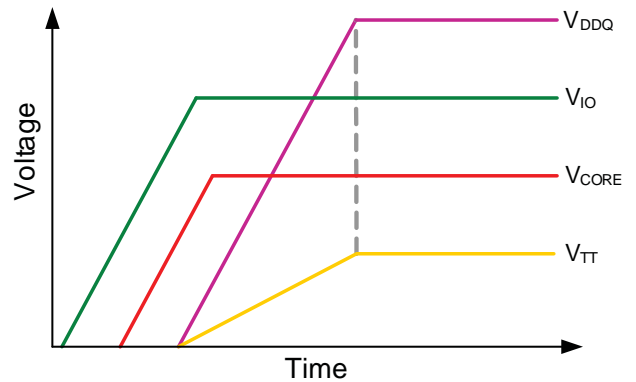
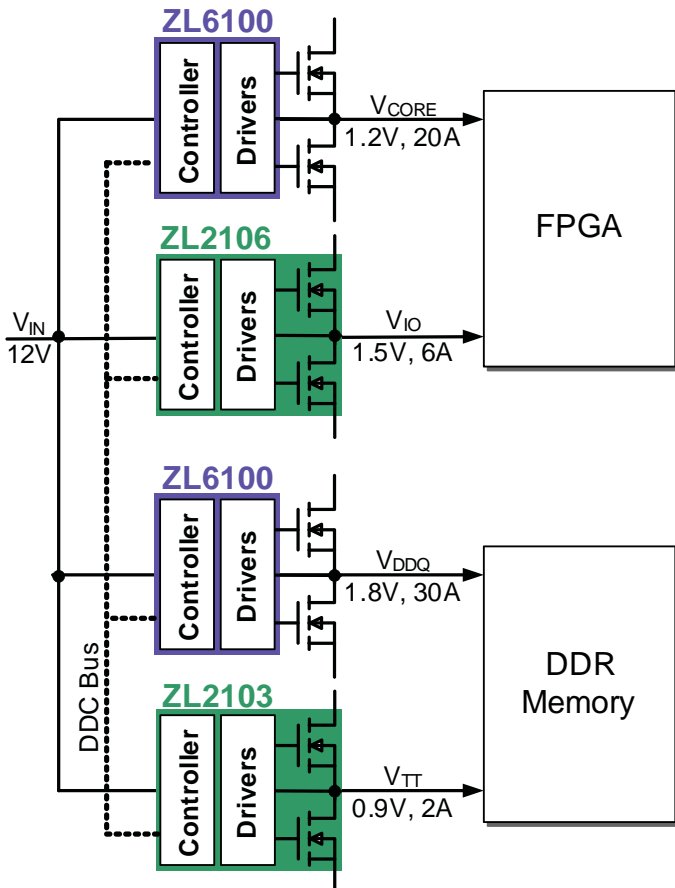
Digital-DC Applications

Power Conversion Benefits



- High V_{OUT} accuracy across line, load and temperature
- High current >40A per phase
- Active current sharing with phase add/drop
- Adaptive efficiency optimization
- Startup pre-bias protection
- External clock synchronization with phase interleaving

Power Management Benefits



- Voltage tracking (50% / 100%)
- Autonomous output sequencing
- Adjustable voltage margining (5% / 10%)
- Voltage, current, temperature monitoring
- Configurable fault management
- Snapshot parametric data capture
- Interoperability with DDC bus
- I²C/SMBus interface, PMBus compatible

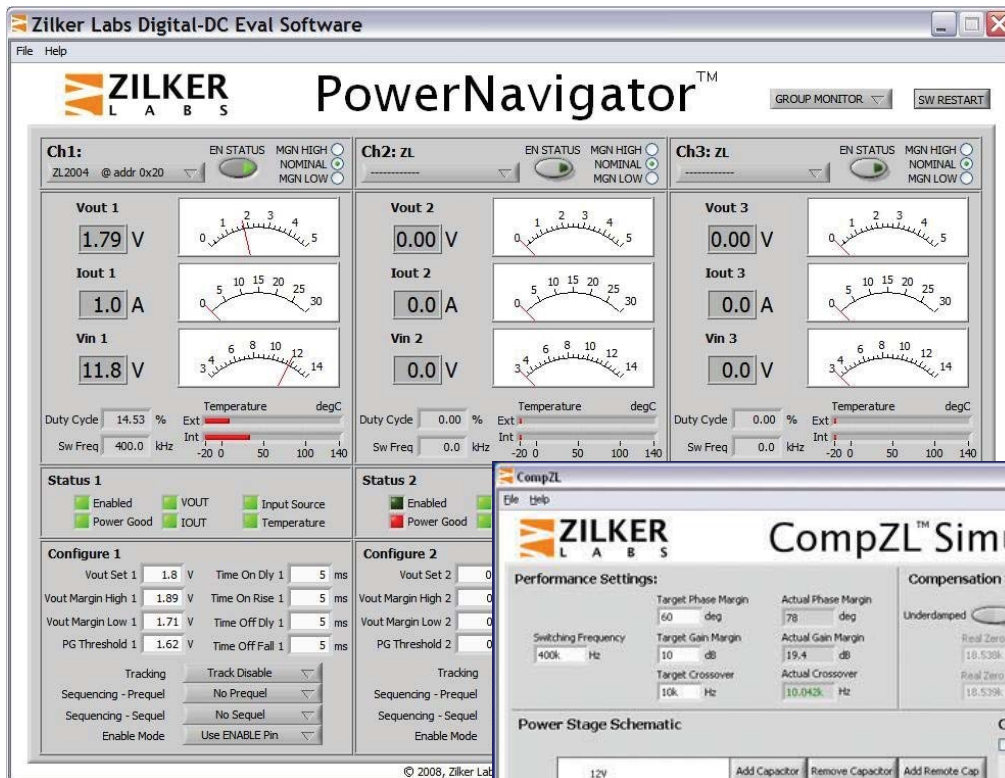
Digital-DC Support and Tools

Intersil's Zilker Labs offers support and tools that further ease the design process for Digital-DC products.

Each evaluation kit (EVK) includes:

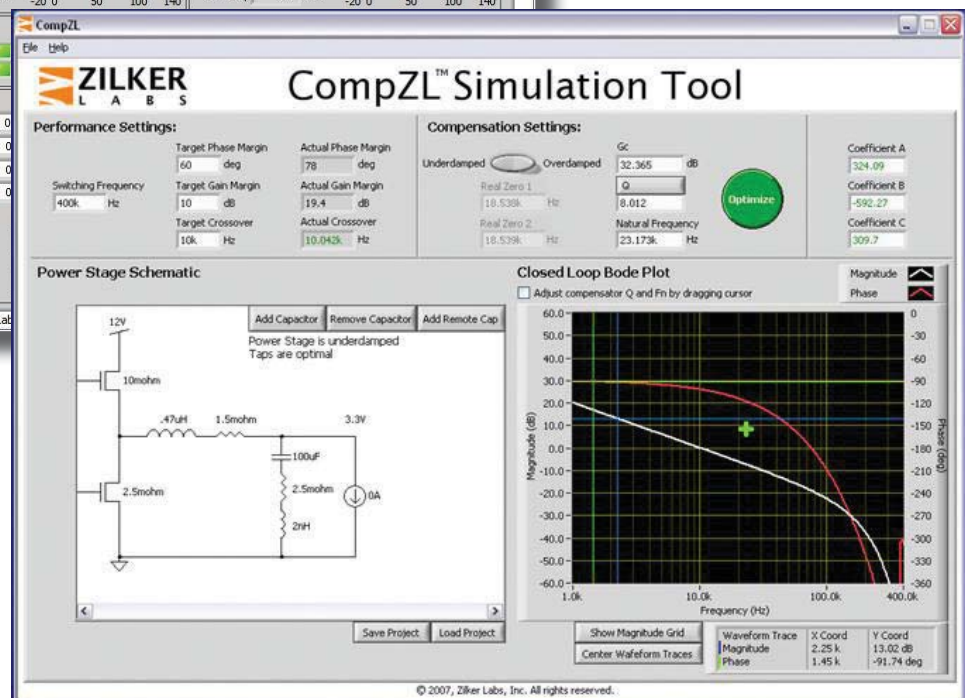
- Evaluation board
- Evaluation software
- Product data sheets
- Quick start guide
- USB-to-SMBus interface board
- USB cable

All DDC bus evaluation boards can be connected together to create an intelligent multi-rail power supply. Once interconnected, the designer can easily configure power supply settings and monitor performance from a single PC with the easy-to-use PowerNavigator evaluation software. Compensation settings can be managed using the CompZL tool.



PowerNavigator

Allows simple configuration and monitoring of multiple Digital-DC devices using a PC with a USB interface.



CompZL

Allows dynamic simulation and display of loop compensation settings and configuration coefficients.

Ordering Information

Part Number	Description
ZL1505ALNNT	Synchronous MOSFET Driver
ZL2008ALAFI	Adaptive Digital DC-DC Controller with Drivers and Pin-strap Compensation
ZL2103ALAFI	3A Integrated Digital DC-DC Converter
ZL2103EVAL1Z	Evaluation kit for the ZL2103
ZL2106ALBNT	6A Integrated Digital DC-DC Converter
ZL2106EVAL1Z	Evaluation kit for the ZL2106
ZL6100ALAFI	Adaptive Digital DC-DC Controller with Drivers & Current Sharing
ZL6100EVAL1Z	Evaluation kit for the ZL6100
ZL6105ALAFI	Adaptive Digital DC-DC Controller with Drivers & Auto Compensation
ZL6105EVAL1Z	Evaluation kit for the ZL6105
ZL8100ALANT	Adaptive Digital DC-DC Controller with Current Sharing
ZL8100EVAL1Z	Evaluation kit for the ZL8100

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Visit www.intersil.com/zilkerlabs for a complete list of sales representatives and distributors.

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