Intersil Solutions for Precise Power Delivery to Xilinx FPGAs

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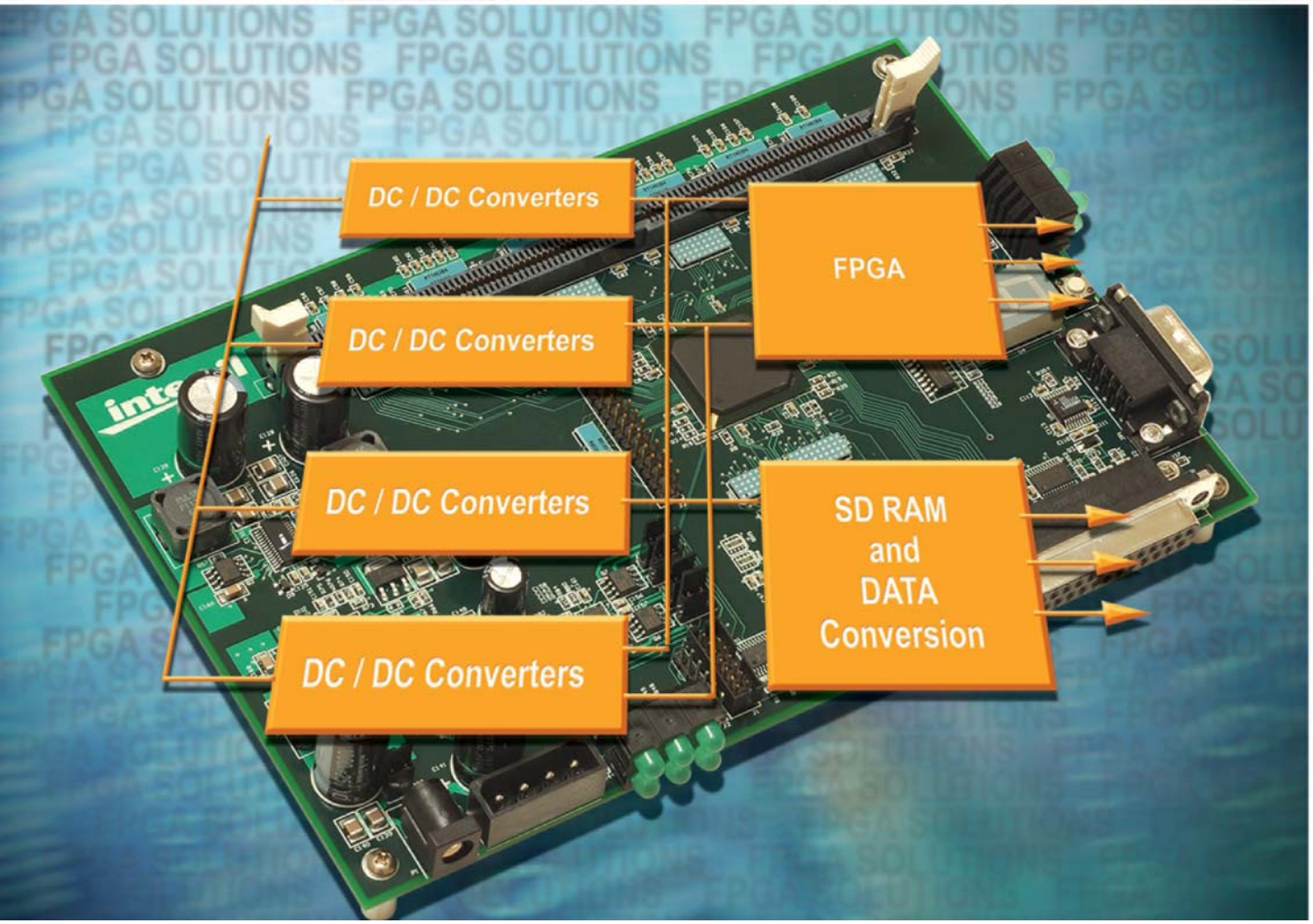

Intersil – Switching Regulators for precise power delivery.

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HIGH PERFORMANCE ANALOG

Typical Field Programmable Gate Array Power Requirements

The flexibility of FPGAs leads to the requirement for multiple supply voltages and currents.

Core Voltage / Power

In large FPGAs, the logic core generally has the most demanding current requirements, up to tens of amps depending on the number of gates being used and the clock frequency. Designated V_{CCINT} by Xilinx, by platform the voltage required is:

- Virtex® -II and Virtex-II Pro® series = 1.5V
- Spartan-3 series = 1.2V

I/O Voltage / Power

Designated V_{CCO} and equal to 1.5V, 1.8V, 2.5V or 3.3V depending on the I/O standard selected. I/O standards can be set independently by block in the FPGA, so more than one I/O voltage for a single FPGA is possible.

V_{AUX} Voltage / Power

The "auxiliary" supply is important for the latest generation of Xilinx FPGAs because it is tied into the JTAG, DCM, and other circuitry. It is designated V_{CCAUX}, and is usually 3.3V or 2.5V. V_{CCAUX} must be sufficiently decoupled in order to avoid power supply transients coupling into the FPGA's clock circuitry.

Intersil's Power Management Portfolio of DC/DC Regulators, PWM and LDO Controllers

Device	V_{IN} (V) Min	V_{IN} (V) Max	I_{OUT} (max)(A)	# of Outputs	Int. FET	V_{OUT} (V) Min	V_{OUT} (V) Max	Device Description	Package
3.3V Input									
ISL6410	3	3.6	0.6	1	Y	1.2	1.8	0.6 Amp PWM Regulator with Selectable V_{OUT} of 1.8, 1.5, or 1.2V, f_{sw} 750kHz, Adj POR delay in QFN pkg.	10 MSOP, 16 QFN
ISL6455	3	3.6	0.6	3	Y	0.8	2.5	0.6 Amp PWM Regulator and Dual 0.3 Amp LDOs and Reset	24 QFN
ISL8010	2.5	5.5	0.6	1	Y	0.8	V_{IN}	600mA, PFM/PWM Mode Synchronous Buck Regulator with Low Quiescent Current	10 MSOP
ISL8011	2.5	5.5	1.2	1	Y	0.8	V_{IN}	1.2 Amp PWM Regulator, f_{sw} 1.4MHz	10 DFN
ISL8009*	2.7	5.5	1.5	1	Y	0.8	4.5	1.5 Amp, PFM/PWM mode Synchronous Buck Regulator with Low Quiescent Current	8 DFN
EL7532	2.5	5.5	2	1	Y	0.8	V_{IN}	2 Amp PWM Regulator with 100mS Power On Reset, f_{sw} 1.5MHz	10 MSOP
ISL8013*	2.7	5.5	3	1	Y	0.8	V_{IN}	3 Amp PWM Regulator with 100mS Power On Reset	16 QFN
ISL8014*	2.7	5.5	4	1	Y	0.8	V_{IN}	4 Amp, PFM/PWM mode Synchronous Buck Regulator with Low Quiescent Current	16 QFN
EL7554	3	6	4	1	Y	0.8	V_{IN}	4 Amp PWM Regulator with ±5% Voltage Margining and Sequencing	28 HTSSOP
EL7566	3	6	6	1	Y	0.8	V_{IN}	6 Amp PWM Regulator with ±5% Voltage Margining and Sequencing	28 HTSSOP
ISL65424*	2.375	5.5	4	2	Y	0.6	V_{IN}	Dual 4A I_{OUT}, 1.5MHz f_{sw}; Programmable I_{OUT} and V_{OUT}	50 QFN
ISL65426	2.375	5.5	6	2	Y	0.6	V_{IN}	Dual 6A I_{OUT}, 1.5MHz f_{sw}; Programmable I_{OUT} and V_{OUT}	50 QFN
ISL6406	3	3.6	20	1		0.8	0.95 x V_{IN}	PWM Controller with Adj f_{sw} 100kHz to 770kHz with Ext Freq Sync	16 SOIC, 16 TSSOP, 16 QFN
ISL6439	3	3.6	20	1		0.8	V_{IN}	PWM Controller with f_{sw} 300 or 600kHz	14 SOIC, 16 QFN
ISL6527/A	3	3.6	20	1		0.8	V_{IN}	PWM Controller with f_{sw} 300 or 600kHz, External Reference	14 SOIC, 16 QFN
5V Input									
ISL6410A	4.5	5.5	0.6	1	Y	1.2	3.3	0.6 Amp PWM Regulator with Selectable V_{OUT} of 3.3, 1.8, or 1.2V, f_{sw} 750kHz, Adj POR delay in QFN pkg.	10 MSOP, 16 QFN
ISL6455A	4.5	5.5	0.6	3	Y	0.8	3.3	0.6 Amp PWM Regulator and Dual 0.3 Amp LDOs and Reset	24 QFN
ISL8010	2.5	5.5	0.6	1	Y	0.8	V_{IN}	600mA, PFM/PWM Mode Synchronous Buck Regulator with Low Quiescent Current	10 MSOP
ISL8011	2.5	5.5	1.2	1	Y	0.8	V_{IN}	1.2 Amp PWM Regulator, f_{sw} 1.4MHz	10 DFN
ISL8009*	2.7	5.5	1.5	1	Y	0.8	4.5	1.5 Amp, PFM/PWM mode Synchronous Buck Regulator with Low Quiescent Current	8 DFN
EL7532	2.5	5.5	2	1	Y	0.8	V_{IN}	2 Amp PWM Regulator with 100mS Power On Reset, f_{sw} 1.5MHz	10 MSOP
ISL8013*	2.7	5.5	3	1	Y	0.8	V_{IN}	3 Amp PWM Regulator with 100mS Power On Reset	16 QFN
ISL8014*	2.7	5.5	4	1	Y	0.8	Vin	4 Amp, PFM/PWM Mode Synchronous Buck Regulator with Low Quiescent Current	16 QFN
EL7554	3	6	4	1	Y	0.8	V_{IN}	4 Amp PWM Regulator with ±5% Voltage Margining and Sequencing	28 HTSSOP
EL7566	3	6	6	1	Y	0.8	V_{IN}	6 Amp PWM Regulator with ±5% Voltage Margining and Sequencing	28 HTSSOP
ISL8502	4.5	5.5	2.5	1	Y	0.6	V_{IN}	2 Amp PWM Regulator with Integrated MOSFETs	24 QFN

Intersil's Power Management Portfolio of DC/DC Regulators, PWM and LDO Controllers *(Cont'd)*

5V Input *(Cont'd)*

Device	V_{IN} (V) Min	V_{IN} (V) Max	I_{OUT} (max)(A)	# of Outputs	Int. FET	V_{OUT} (V) Min	V_{OUT} (V) Max	Device Description	Package
ISL8500*	4.5	5.5	2	1	Y	0.6	25	2 Amp, PWM Standard Buck Regulator	12 DFN
ISL8501*	4.5	5.5	1	1	Y	0.6	V_{IN}	1 Amp PWM Regulator with Dual 0.45 Amp LDOs	24 QFN
ISL65424*	2.375	5.5	4	2	Y	0.6	V_{IN}	Dual 4A I_{OUT}, 1.5MHz f_{sw}; programmable I_{OUT} and V_{OUT}	50 QFN
ISL65426	2.375	5.5	6	2	Y	0.6	V_{IN}	Dual 6A I_{OUT}, 1.5MHz f_{sw}; programmable I_{OUT} and V_{OUT}	50 QFN
ISL6440	4.5	5.5	10	2		0.8	0.9 x V_{IN}	Dual PWM Controllers with Wide V_{IN}, f_{sw} 300kHz	24 QSOP
ISL6445	4.5	5.5	10	2		0.8	5.5	Dual Synchronous Buck PWM Controller with Wide V_{IN}, f_{sw} 1.4MHz	24 QSOP
ISL6441	4.5	5.5	6	3		0.8	0.7 x V_{IN}	Dual PWM Controllers with Wide V_{IN}, f_{sw} 1.4MHz and Linear Controller	28 QFN
ISL6442	4.5	5.5	20	3		0.8	V_{IN}	Dual PWM Controllers with Wide V_{IN}, f_{sw} 2.4MHz and Linear Controller	24 QSOP
ISL6443	4.5	5.5	10	3		0.8	0.9 x V_{IN}	Dual PWM Controllers with Wide V_{IN}, f_{sw} 300kHz and Linear Controller	28 QFN
ISL6420A	4.5	5.5	20	1		0.6	V_{IN}	PWM Controller with Wide V_{IN}, Start-Up into Pre-Bias Load	20 QFN
ISL6406	4.5	5.5	20	1		0.8	0.95 x V_{IN}	PWM Controller with Adj f_{sw} 100kHz to 770kHz with Ext Freq Sync	16 SOIC, 16 TSSOP, 16 QFN
ISL6439	4.5	5.5	20	1		0.8	V_{IN}	PWM Controller with 300 or 600kHz Osc	14 SOIC, 16 QFN
ISL6527/A	4.5	5.5	20	1		0.8	V_{IN}	PWM Controller with 300 or 600kHz Osc, External Reference	14 SOIC, 16 QFN
ISL6521	4.5	5.5	20	4		0.8	4.5	PWM Controller and Triple Linear Controllers	16 SOIC
ISL8105/A/B	1	12	20	1		0.6	V_{IN}	PWM Controller with 300kHz and 600kHz Options	14 SOIC
ISL8101	5	12	≥60	1		0.6	2.3	Two Phase Multiphase Buck PWM Controller with MOSFET Drivers, f_{sw} 250kHz/Phase	24 QFN
ISL8102	5	12	80	1		0.6	2.3	Two Phase Buck PWM Controller with High Curent MOSFET Drivers, f_{sw} 1.5MHz/Phase	32 QFN
ISL8103	5	12	100	1		0.6	2.3	Three Phase Buck PWM Controller with High Curent MOSFET Drivers, f_{sw} 1.5MHz/Phase	40 QFN
ISL8121	3	20	60	1		0.6	0.66 x V_{IN}	Two Phase Buck PWM Controller with Integreated 4 Amp MOSFET Drivers	24 QFN

12V Input

ISL8502	5.6	15	2	1	Y	0.6	V_{IN}	2 Amp PWM Regulator with Integrated MOSFETs	24 QFN
ISL8500*	6	25	2	1	Y	0.6	25	2 Amp, PWM Standard Buck Regulator	12 DFN
ISL8501*	5.6	22	1	3	Y	0.6	V_{IN}	1 Amp PWM Regulator with Dual 0.45 Amp LDOs	24 QFN
ISL6440	5.6	24	10	2		0.8	0.9 x V_{IN}	Dual PWM Controllers with Wide V_{IN}, f_{sw} 300kHz	24 QSOP
ISL6445	5.6	24	10	2		0.8	5.5	Dual Synchronous Buck PWM Controller with Wide V_{IN}, f_{sw} 1.4MHz	24 QSOP
ISL6441	5.6	24	6	3		0.8	0.7 x V_{IN}	Dual PWM Controllers with Wide V_{IN}, f_{sw} 1.4MHz and Linear Controller	28 QFN
ISL6442	5.6	24	20	3		0.8	V_{IN}	Dual PWM Controllers with Wide V_{IN}, f_{sw} 2.4MHz and Linear Controller	24 QSOP
ISL6443	5.6	24	10	3		0.8	0.9 x V_{IN}	Dual PWM Controllers with Wide V_{IN}, f_{sw} 300kHz and Linear Controller	28 QFN
ISL6420A	5.6	28	20	1		0.6	V_{IN}	PWM Controller with Wide V_{IN}, Start-Up into Pre-Bias Load	20 QFN
ISL8104	1.2	12	20	1		0.6	V_{IN}	PWM Controller with 50kHz to 1.5MHz f_{sw}	14 SOIC
ISL8105/A/B	1	12	20	1		0.6	V_{IN}	PWM Controller with 300kHz and 600kHz options	14 SOIC
ISL8101	5	12	≥60	1		0.6	2.3	Two Phase Multiphase Buck PWM Controller with MOSFET Drivers, f_{sw} 250kHz/Phase	24 QFN
ISL8102	5	12	80	1		0.6	2.3	Two Phase Buck PWM Controller with High Cuurent MOSFET Drivers, f_{sw} 1.5MHz/Phase	32 QFN
ISL8103	5	12	100	1		0.6	2.3	Three Phase Buck PWM Controller with High Curent MOSFET Drivers, f_{sw} 1.5MHz/Phase	40 QFN
ISL8121	3	20	60	1		0.6	0.66 x V_{IN}	Two Phase Buck PWM Controller with Integreated 4 Amp MOSFET Drivers	24 QFN
ISL8106	7	25	12	1		0.6	3.3	Single Phase PWM Controller with Integrated MOSFET Drivers, f_{sw} 200kHz to 600kHz	16 QFN

* Coming Soon

Intersil's Family of Integrated FET Regulators

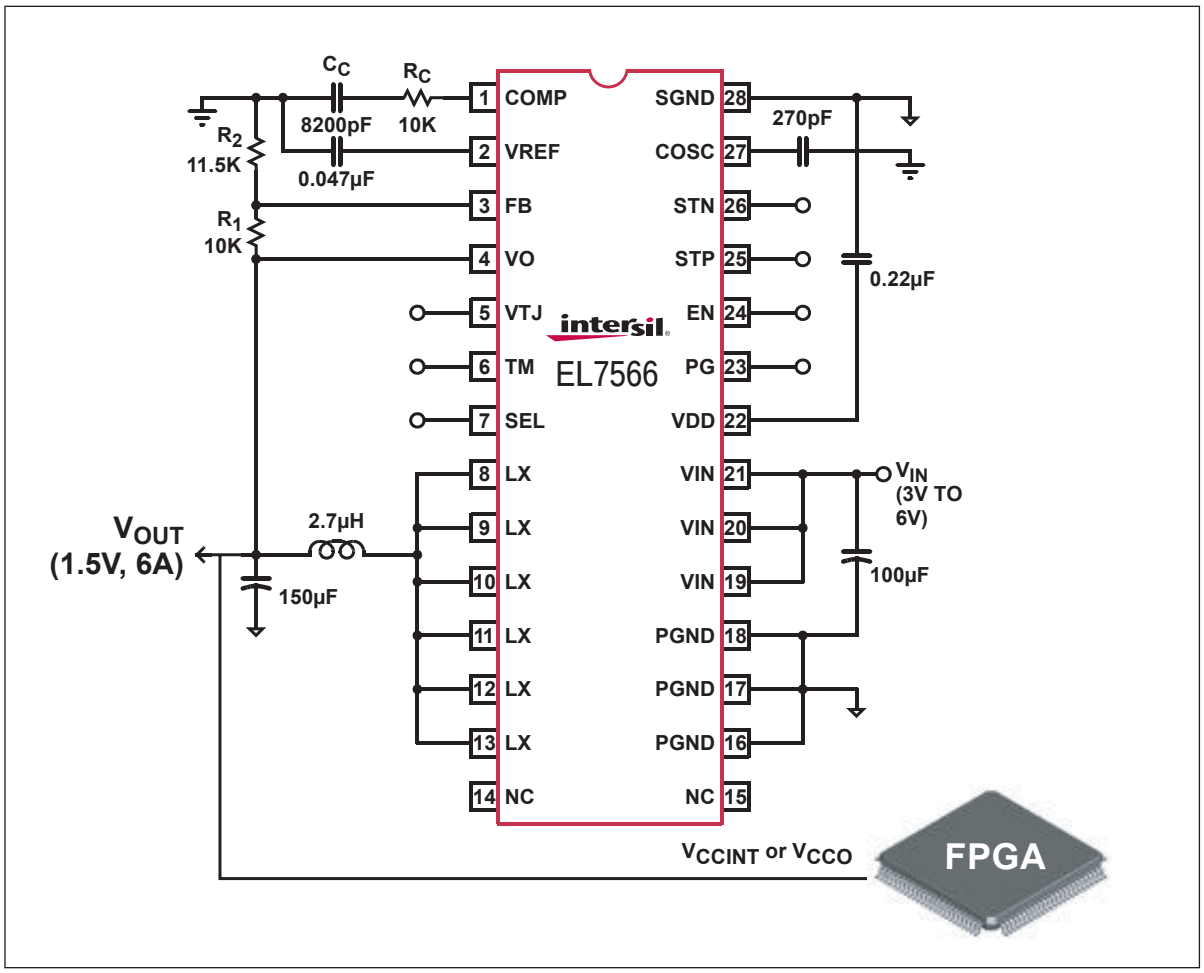
Simple "plug-and-play" solutions for applications requiring 6A or lower output currents.

PWM switchers are used to generate a single output voltage using either integrated power MOSFETs or external power MOSFETs. The integrated parts are usually limited to applications requiring output currents of 6Amps or less and are optimized for circuit size and design simplicity. Switchers using external power MOSFETs can generally provide higher output currents and may offer other attributes that are not available in the integrated controllers.

Intersil's family of highly integrated switching regulators require only 10 external components because the power FETs are integrated on the device. Input voltages of 3 to 6V are possible and continuous output currents of 1, 2, 4 or 6 amps respectively are available. These products make a very compact, and >90% efficient solution for either V_{CCINT} or V_{CCO}.

Component selection software, evaluation boards and Gerber files are available at www.intersil.com/products/deviceinfo.asp?pn=EL7566.

6 Amp EL7566 Eval Board



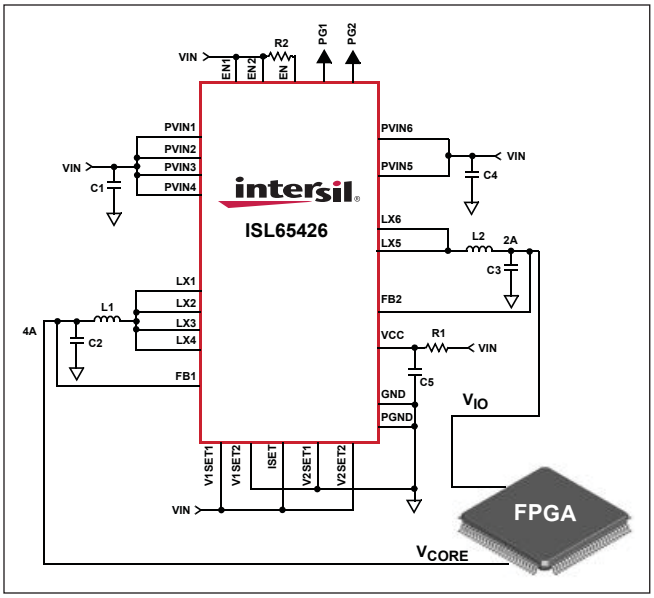
3.3V to 6V EL7566-Based Integrated Buck Solution

ISL65426: 6A Dual Synchronous Switchers for V_{CCINT} and V_{CCO}

The ISL65426 is a high efficiency dual output monolithic synchronous buck converter with integrated power MOSFETs, tailor-made for FPGA power solutions. Operating from an input bias ranging from 2.375V to 5.5V, the single ship solution provides two output voltages which are selectable or externally adjustable from 0.8V to 4.0V while delivering up to 6A of total output current. The two regulator outputs can be used to supply V_{CCINT} and V_{CCIO} with a reduced number of external components and high efficiency.

The power block contains six 1A capable blocks to support one of the four output configuration options (3A:3A, 4A:2A, 5A:1A, 2A:4A).

High integration contained in a thin Quad Flat No-Lead (QFN) package makes the ISL65426 the ideal choice to power small form factor power management applications.



I1SET	I2SET	IOUT1	CHANNEL1 CONNECTIONS	IOUT2	CHANNEL2 CONNECTIONS
1	1	3A	LX1, LX2, LX3	3A	LX4, LX5, LX6
1	0	4A	LX1, LX2, LX3, LX4	2A	LX5, LX6
0	1	5A	LX1, LX2, LX3, LX4, LX6	1A	LX5
0	0	2A	LX1, LX2	4A	LX3, LX4, LX5, LX6

The "One-Chip" Power Solution

Intersil's multi-output family of PWM controllers and Integrated FETs support up to four rails, providing a "one-chip" solution for most applications.

Multiple Output/Multi-Phase IFETs and Controllers

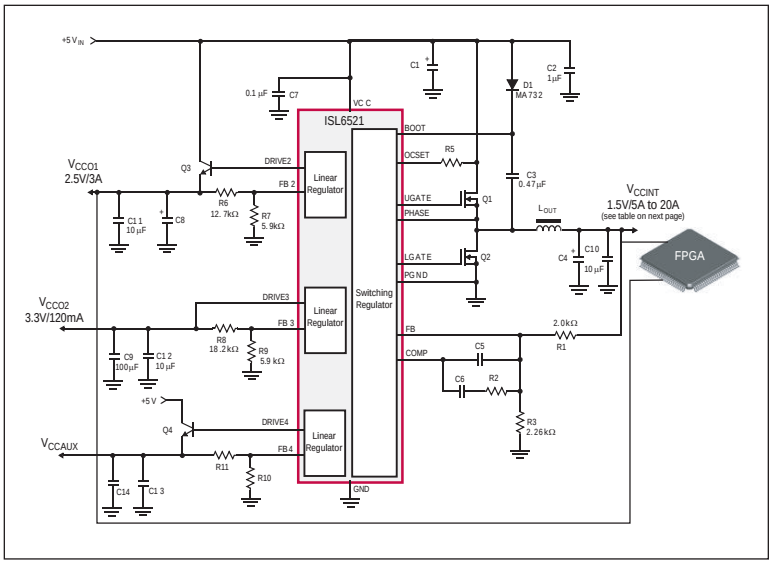
Part Number	Architecture	Input Voltage Range (V)	Output Voltage Range (V)	I_{OUT} max (A)
ISL6455	1 PWM Regulator + 2 LDOs	3.0 - 3.6	0.8 - 2.5	0.6
ISL6455A	1 PWM Regulator + 2 LDOs	4.5 - 5.5	0.8 - 3.3	0.6
ISL8501*	1 PWM Regulator + 2 LDOs	6.0 - 22	0.6 - 22	1
ISL6440	2 PWMs	4.5 - 24	0.8 - 24	10
ISL6445	2 PWMs	4.5 - 24	0.8 - 5.5	10
ISL6441	2 PWMs + Linear (f_{sw} = 1.4MHz)	4.5 - 24	0.8 - 24	20
ISL6442	2 PWMs + Linear (f_{sw} = 2.5MHz)	4.5 - 24	0.8 - 24	20
ISL6443	2 PWMs + Linear (f_{sw} = 300kHz)	4.5 - 24	0.8 - 24	20
ISL65424*	2 PWM Regulators	2.375 - 5.5	0.6 - 5.5	4
ISL65426	2 PWM Regulators	2.375 - 5.5	0.6 - 5.5	6
ISL8101	3 Phase PWM	5.0 - 12	0.6 - 2.3	100
ISL8102	2 Phase PWM	5.0 - 12	0.6 - 2.3	60
ISL8103	2 Phase PWM	5.0 - 12	0.8375 - 1.6	60 - 80
ISL8121	2 Phase PWM	3.0 - 20	0.6 - 0.66xV_{IN}	60

* Coming Soon

ISL6521: Switcher for V_{CCINT} and Linear Regulators for V_{CCO1}, V_{CCAUX}, and V_{CCO2}

Combination products that incorporate multiple switchers and/or linears in a single package are an excellent choice for many FPGA-based designs. These combination devices can provide all the voltages required from a single IC or board, and they can be adjusted to provide the optimum responses for the end application. Good layout and bypassing techniques plus excellent on-chip isolation prevents the supplies from interacting.

The ISL6521 can provide the required currents and voltages for the latest generation of Xilinx FPGAs (for example Spartan-3, Virtex-II and Virtex-II Pro) in a 16-pin SOIC package with minimal external components. The ISL6521 implements a highly efficient synchronous buck design and in addition includes three linear regulators, which can provide additional voltages to the board. I_{CCO} and I_{CCAUX} currents less than 120mA can be supplied directly from the linear regulator drive pins (as shown here for V_{CCO2}) or they can be used to control an external transistor (as shown here for V_{CCO1} and V_{CCAUX}).



Highly Integrated ISL6521-Based Solution

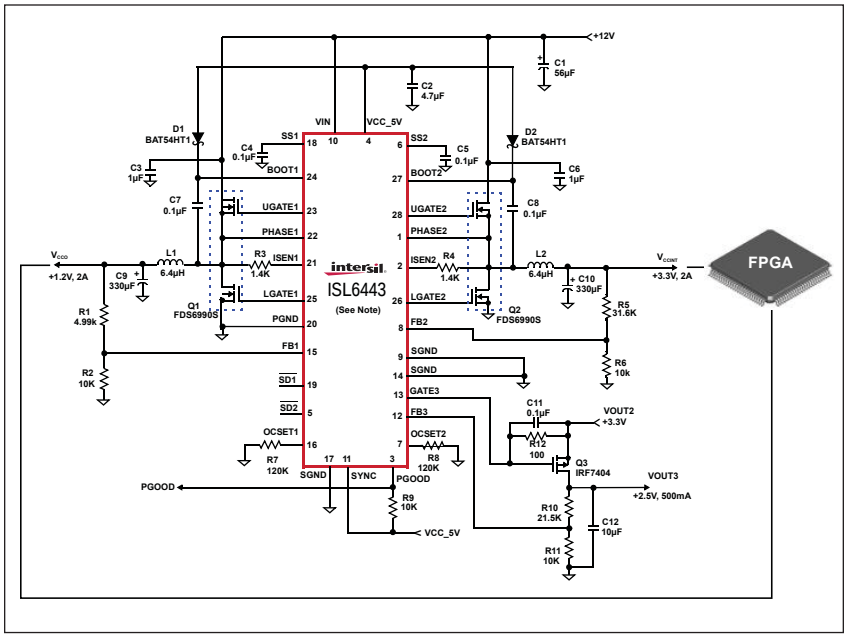
The complete datasheet for the ISL6521 is available at www.intersil.com/data/fn/fn9148.pdf. Simulation tools are also available at www.intersil.com/isim/.

ISL644X: High Efficiency Dual, Step Down PWM Controller with Single Linear Controller

300kHz to 2.5MHz Family of Dual, 180° Out-of-Phase, Triple Output Controllers

The ISL644X family of controllers can create a highly efficient triple-output solution by using 180° out-of-phase synchronous buck switchers to supply V_{CCINT} and V_{CCIO}. It also has an internal 5V Linear regulator that can sink and source current. The Linear regulator can source up to 6A using an external transistor. The ISL644X family offers a wide input range of V_{IN} from 5.6V to 24V and 4.5V to 5.6V.

The two PWMs synchronized 180° out-of-phase reduce the RMS input current and ripple voltage, hence can supply both Core and I/O voltages independently. The ISL644X family incorporates several Protection and supervisory features. Power-up sequencing is available through the integrated programmable Soft-Start. The outputs can be adjustable down to 0.8V and up to 24V. The efficiency of the ISL644X family is enhanced by using the lower MOSFET $R_{DS(ON)}$.



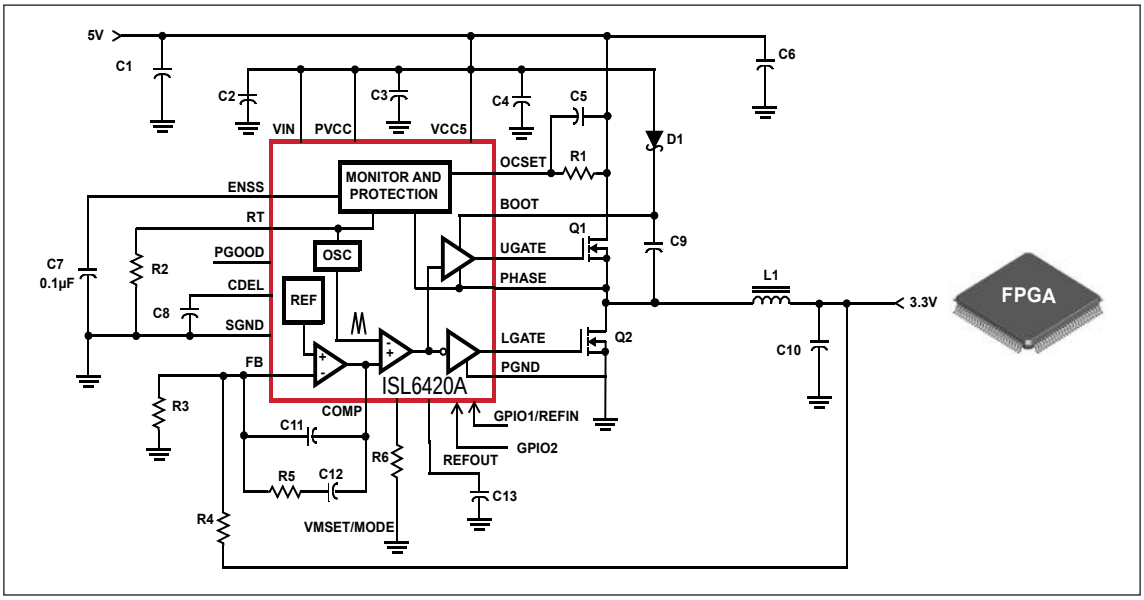
ISL6420A: Advanced Single Synchronous Buck PWM Controller

The ISL6420A is an excellent solution for all the FPGA family's power requirements. It has a wide input voltage range from 4.5V to 28V and a programmable output current capability up to 20A.

The core or the I/O voltages are supplied by a synchronous buck switcher with fast transient response which makes the solution very efficient. The output voltages of the ISL6420A are fully adjustable from 0.6V to 28V, with a maximum tolerance of ±1.0% over temperature and line voltage variations.

The switching frequency is resistor selectable from 100kHz to 1.4MHz which offers cost and space savings. The ISL6420A integrates control, output adjustment, monitoring and protection functions into a single package. The ISL6420A is available in QFN and QSOP packages.

The complete datasheet for the ISL6420A is available at www.intersil.com/cda/deviceinfo/0,1477,ISL6420A,0.html

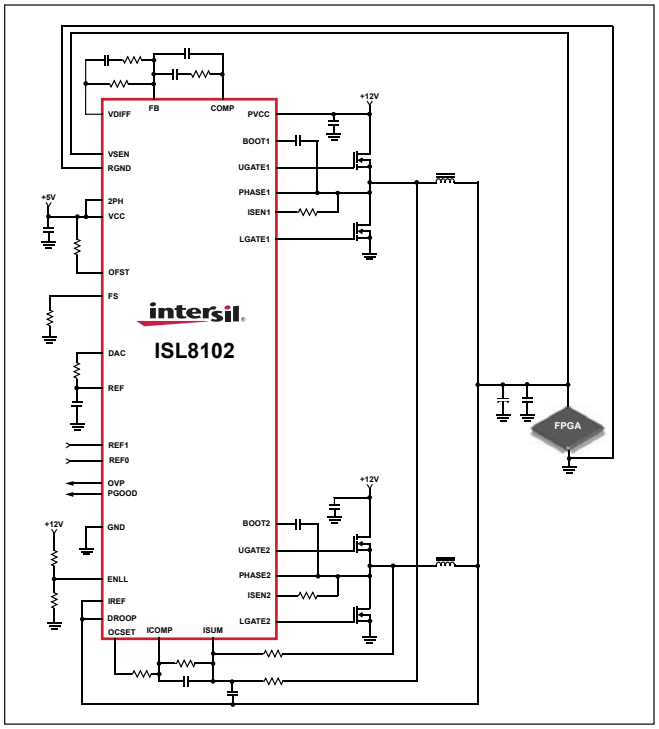


>20A Solutions: ISL8102 Multi-phase Buck PWM Controller

As the current requirements of the board rise to greater than 20A, more sophisticated power supply solutions are required to maintain well-regulated supply voltages. By distributing the power and load current, implementation of multi-phase converters utilize smaller and lower cost transistors with fewer passives. These reductions are possible due to the phase interleaving Process of this topology.

The ISL8102 is a two-phase PWM control IC with Integrated MOSFET drivers. It has the system voltage regulation accuracy up to ±0.5% over temperature. It integrates an optional Load Line (Droop) programming, using the loss-less inductor DCR current sampling. Precision channel current sharing is implemented using loss-less $R_{DS(ON)}$ current sampling, which makes it a highly efficient solution.

The complete datasheet for the ISL8102 is available at www.intersil.com/cda/deviceinfo/0,1477,ISL8102,0.html



VIRTEX-5 Power Requirement Summary

V_{CCINT}	1.0V
V_{CCO}	1.2, 1.5, 1.8, 2.5, 3.3V
V_{CCAUX}	2.5V

Intersil Power Solutions for Virtex-5 FPGAs

		Input Supply			
		V_{IN} = 3.3V	V_{IN} = 5V	V_{IN} = 12V	V_{IN} = 24V
V_{CCINT}					
V_{CCINT} = 1.0V	I_{CCINT} ≤ 600mA	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502,ISL8501*	ISL6420A, ISL8501*
	I_{CCINT} = 1A	ISL8011, ISL8009*	ISL8011, ISL8009*	ISL6420A, ISL8501*	ISL6420A, ISL8501*
	I_{CCINT} = 2A	EL7532, ISL8012*	EL7532, ISL8012*	ISL6420A, ISL8502	ISL6420A, ISL8500*
	I_{CCINT} = 3A	ISL8013*, ISL6527/A	ISL8013*, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
	I_{CCINT} = 4A-6A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL6527/A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
V_{CCIO}					
V_{CCIO} = 1.2V	I_{CCIO} ≤ 600mA	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 1A	ISL8011, ISL8009*	ISL8011, ISL8009*	ISL6420A, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 2A	EL7532, ISL8012*	EL7532, ISL8012*	ISL6420A, ISL8502	ISL6420A, ISL8500*
	I_{CCIO} = 3A	ISL8013*, ISL6527/A	ISL8013*, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
	I_{CCIO} = 4A-6A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL6527/A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
V_{CCIO} = 1.5V	I_{CCIO} ≤ 600mA	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502,ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 1A	ISL8011, ISL8009*	ISL8011, ISL8009*	ISL6420A, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 2A	EL7532, ISL8012*	EL7532, ISL8012*	ISL6420A, ISL8502	ISL6420A, ISL8500*, ISL8560*
	I_{CCIO} = 3A	ISL8013*, ISL6527/A	ISL8013*, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
	I_{CCIO} = 4A-6A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL6527/A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
V_{CCIO} = 1.8V	I_{CCIO} ≤ 600mA	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 1A	ISL8011, ISL8009*	ISL8011, ISL8009*	ISL6420A, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 2A	EL7532, ISL8012*	EL7532, ISL8012*	ISL6420A, ISL8502	ISL6420A, ISL8500*, ISL8560*
	I_{CCIO} = 3A	ISL8013*, ISL6527/A	ISL8013*, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
	I_{CCIO} = 4A-6A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL6527/A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
V_{CCIO} = 2.5V	I_{CCIO} ≤ 600mA	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 1A	ISL8011, ISL8009*	ISL8011, ISL8009*	ISL6420A, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 2A	EL7532, ISL8012*	EL7532, ISL8012*	ISL6420A, ISL8502	ISL6420A, ISL8500*, ISL8560*
	I_{CCIO} = 3A	ISL8013*, ISL6527/A	ISL8013*, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
	I_{CCIO} = 4A-6A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL6527/A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
V_{CCIO} = 3.3V	I_{CCIO} ≤ 600mA	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502,ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 1A	ISL8011, ISL8009*	ISL8011, ISL8009*	ISL6420A, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 2A	EL7532, ISL8012*	EL7532, ISL8012*	ISL6420A, ISL8502	ISL6420A, ISL8500*, ISL8560*
	I_{CCIO} = 3A	ISL8013*, ISL6527/A	ISL8013*, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
	I_{CCIO} = 4A-6A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL6527/A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
V_{CCAUX}					
V_{CCAUX} = 2.5V	I_{CCAUX} < 600mA	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502, ISL8501*	ISL6420A, ISL8501*
	I_{CCAUX} = 1A	ISL8011, ISL8009*	ISL8011, ISL8009*	ISL6420A, ISL8501*	ISL6420A, ISL8501*
	I_{CCAUX} = 2A	EL7532, ISL8012*	EL7532, ISL8012*	ISL6420A, ISL8502	ISL6420A, ISL8500*, ISL8560*
	I_{CCAUX} = 3A	ISL8013*, ISL6527/A	ISL8013*, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A

* Coming Soon

VIRTEX-4, SPARTAN-3 & SPARTAN-3E Power Requirement Summary

V_{CCINT}	1.20V
V_{CCO}	1.2, 1.5, 1.8, 2.5, 3.3V
V_{CCAUX}	2.5V

Intersil Power Solutions for Virtex-4, Spartan-3 & Spartan-3E FPGAs

		Input Supply			
		V_{IN} = 3.3V	V_{IN} = 5V	V_{IN} = 12V	V_{IN} = 24V
V_{CCINT}					
V_{CCINT} = 1.2V	I_{CCINT} ≤ 600mA	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502, ISL8501*	ISL6420A, ISL8501*
	I_{CCINT} = 1A	ISL8011, ISL8009*	ISL8011, ISL8009*	ISL6420A, ISL8501*	ISL6420A, ISL8501*
	I_{CCINT} = 2A	EL7532, ISL8012*	EL7532, ISL8012*	ISL6420A, ISL8502	ISL6420A, ISL8500*
	I_{CCINT} = 3A	ISL8013*, ISL6527/A	ISL8013*, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
	I_{CCINT} = 4A-6A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL6527/A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
V_{CCIO}					
V_{CCINT} = 1.2V	I_{CCIO} ≤ 600mA	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 1A	ISL8011, ISL8009*	ISL8011, ISL8009*	ISL6420A, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 2A	EL7532, ISL8012*	EL7532, ISL8012*	ISL6420A, ISL8502	ISL6420A, ISL8500*
	I_{CCIO} = 3A	ISL8013*, ISL6527/A	ISL8013*, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
	I_{CCIO} = 4A-6A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL6527/A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
V_{CCIO} = 1.5V	I_{CCIO} ≤ 600mA	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 1A	ISL8011, ISL8009*	ISL8011, ISL8009*	ISL6420A, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 2A	EL7532, ISL8012*	EL7532, ISL8012*	ISL6420A, ISL8502	ISL6420A, ISL8500*, ISL8560*
	I_{CCIO} = 3A	ISL8013*, ISL6527/A	ISL8013*, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
	I_{CCIO} = 4A-6A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL6527/A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
V_{CCIO} = 1.8V	I_{CCIO} ≤ 600mA	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502,ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 1A	ISL8011, ISL8009*	ISL8011, ISL8009*	ISL6420A, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 2A	EL7532, ISL8012*	EL7532, ISL8012*	ISL6420A, ISL8502	ISL6420A, ISL8500*, ISL8560*
	I_{CCIO} = 3A	ISL8013*, ISL6527/A	ISL8013*, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
	I_{CCIO} = 4A-6A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL6527/A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
V_{CCIO} = 2.5V	I_{CCIO} ≤ 600mA	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 1A	ISL8011, ISL8009*	ISL8011, ISL8009*	ISL6420A, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 2A	EL7532, ISL8012*	EL7532, ISL8012*	ISL6420A, ISL8502	ISL6420A, ISL8500*, ISL8560*
	I_{CCIO} = 3A	ISL8013*, ISL6527/A	ISL8013*, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
	I_{CCIO} = 4A-6A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL6527/A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
V_{CCIO} = 3.3V	I_{CCIO} ≤ 600mA	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 1A	ISL8011, ISL8009*	ISL8011, ISL8009*	ISL6420A, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 2A	EL7532, ISL8012*	EL7532, ISL8012*	ISL6420A, ISL8502	ISL6420A, ISL8500*, ISL8560*
	I_{CCIO} = 3A	ISL8013*, ISL6527/A	ISL8013*, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
	I_{CCIO} = 4A-6A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL6527/A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
V_{CCAUX}					
V_{CCAUX} = 2.5V	I_{CCAUX} = 0.3A	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502, ISL8501*	ISL6420A, ISL8501*

* Coming Soon

VIRTEX-II & VIRTEX-II PRO Power Requirement Summary

V_{CCINT}	1.5V
V_{CCO}	1.5, 1.8, 2.5, 3.3V
V_{CCAUX}	3.3, 2.5V**

Intersil Power Solutions for VIRTEX-II & VIRTEX-II PRO FPGAs

		Input Supply			
		V_{IN} = 3.3V	V_{IN} = 5V	V_{IN} = 12V	V_{IN} = 24V
V_{CCINT}					
V_{CCINT} = 1.5V	I_{CCINT} ≤ 600mA	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502, ISL8501*	ISL6420A, ISL8501*
	I_{CCINT} = 1A	ISL8011, ISL8009*	ISL8011, ISL8009*	ISL6420A, ISL8501*	ISL6420A, ISL8501*
	I_{CCINT} = 2A	EL7532, ISL8012*	EL7532, ISL8012*	ISL6420A, ISL8502	ISL6420A, ISL8500*
	I_{CCINT} = 3A	ISL8013*, ISL6527/A	ISL8013*, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
	I_{CCINT} = 4A-6A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL6527/A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
V_{CCIO}					
V_{CCIO} = 1.5V	I_{CCIO} ≤ 600mA	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 1A	ISL8011, ISL8009*	ISL8011, ISL8009*	ISL6420A, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 2A	EL7532, ISL8012*	EL7532, ISL8012*	ISL6420A, ISL8502	ISL6420A, ISL8500*, ISL8560*
	I_{CCIO} = 3A	ISL8013*, ISL6527/A	ISL8013*, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
	I_{CCIO} = 4A-6A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL6527/A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
V_{CCIO} = 1.8V	I_{CCIO} ≤ 600mA	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 1A	ISL8011, ISL8009*	ISL8011, ISL8009*	ISL6420A, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 2A	EL7532, ISL8012*	EL7532, ISL8012*	ISL6420A, ISL8502	ISL6420A, ISL8500*, ISL8560*
	I_{CCIO} = 3A	ISL8013*, ISL6527/A	ISL8013*, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
	I_{CCIO} = 4A-6A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL6527/A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
V_{CCIO} = 2.5V	I_{CCIO} ≤ 600mA	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 1A	ISL8011, ISL8009*	ISL8011, ISL8009*	ISL6420A, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 2A	EL7532, ISL8012*	EL7532, ISL8012*	ISL6420A, ISL8502	ISL6420A, ISL8500*, ISL8560*
	I_{CCIO} = 3A	ISL8013*, ISL6527/A	ISL8013*, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
	I_{CCIO} = 4A-6A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL6527/A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
V_{CCIO} = 3.3V	I_{CCIO} ≤ 600mA	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 1A	ISL8011, ISL8009*	ISL8011, ISL8009*	ISL6420A, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 2A	EL7532, ISL8012*	EL7532, ISL8012*	ISL6420A, ISL8502	ISL6420A, ISL8500*, ISL8560*
	I_{CCIO} = 3A	ISL8013*, ISL6527/A	ISL8013*, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
	I_{CCIO} = 4A-6A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL6527/A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
V_{CCAUX}					
V_{CCAUX} = 3.3V	I_{CCAUX} = 0.3A	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502, ISL8501*	ISL6420A, ISL8501*
V_{CCAUX} = 2.5V**	I_{CCAUX} = 0.3A	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502, ISL8501*	ISL6420A, ISL8501*

* Coming Soon
**Virtex-II PRO only.

Spartan-II Power Requirement Summary

V_{CCINT}	2.5V
V_{CCO}	1.5, 2.5, 3.3V

Intersil Power Solutions for Spartan-II FPGAs

		Input Supply			
		V_{IN} = 3.3V	V_{IN} = 5V	V_{IN} = 12V	V_{IN} = 24V
V_{CCINT}					
V_{CCINT} = 2.5V	I_{CCINT} ≤ 600mA	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502, ISL8501*	ISL6420A, ISL8501*
	I_{CCINT} = 1A	ISL8011, ISL8009*	ISL8011, ISL8009*	ISL6420A, ISL8501*	ISL6420A, ISL8501*
	I_{CCINT} = 2A	EL7532, ISL8012*	EL7532, ISL8012*	ISL6420A, ISL8502	ISL6420A, ISL8500*
	I_{CCINT} = 3A	ISL8013*, ISL6527/A	ISL8013*, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
	I_{CCINT} = 4A-6A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL6527/A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
V_{CCIO}					
V_{CCIO} = 1.5V	I_{CCIO} ≤ 600mA	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 1A	ISL8011, ISL8009*	ISL8011, ISL8009*	ISL6420A, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 2A	EL7532, ISL8012*	EL7532, ISL8012*	ISL6420A, ISL8502	ISL6420A, ISL8500*, ISL8560*
	I_{CCIO} = 3A	ISL8013*, ISL6527/A	ISL8013*, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
	I_{CCIO} = 4A-6A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL6527/A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
V_{CCIO} = 2.5V	I_{CCIO} ≤ 600mA	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 1A	ISL8011, ISL8009*	ISL8011, ISL8009*	ISL6420A, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 2A	EL7532, ISL8012*	EL7532, ISL8012*	ISL6420A, ISL8502	ISL6420A, ISL8500*, ISL8560*
	I_{CCIO} = 3A	ISL8013*, ISL6527/A	ISL8013*, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
	I_{CCIO} = 4A-6A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL6527/A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
V_{CCIO} = 3.3V	I_{CCIO} ≤ 600mA	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 1A	ISL8011, ISL8009*	ISL8011, ISL8009*	ISL6420A, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 2A	EL7532, ISL8012*	EL7532, ISL8012*	ISL6420A, ISL8502	ISL6420A, ISL8500*, ISL8560*
	I_{CCIO} = 3A	ISL8013*, ISL6527/A	ISL8013*, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
	I_{CCIO} = 4A-6A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL6527/A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A

* Coming Soon

Spartan-IIE Power Requirement Summary

V_{CCINT}	1.8V
V_{CCO}	1.5, 1.8, 2.5, 3.3V

Intersil Power Solutions for Spartan-IIE FPGAs

		Input Supply			
		V_{IN} = 3.3V	V_{IN} = 5V	V_{IN} = 12V	V_{IN} = 24V
V_{CCINT}					
V_{CCINT} = 1.8V	I_{CCINT} ≤ 600mA	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502, ISL8501*	ISL6420A, ISL8501*
	I_{CCINT} = 1A	ISL8011, ISL8009*	ISL8011, ISL8009*	ISL6420A, ISL8501*	ISL6420A, ISL8501*
	I_{CCINT} = 2A	EL7532, ISL8012*	EL7532, ISL8012*	ISL6420A, ISL8502	ISL6420A, ISL8500*
	I_{CCINT} = 3A	ISL8013*, ISL6527/A	ISL8013*, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
	I_{CCINT} = 4A-6A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL6527/A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
V_{CCIO}					
V_{CCIO} = 1.5V	I_{CCIO} ≤ 600mA	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 1A	ISL8011, ISL8009*	ISL8011, ISL8009*	ISL6420A, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 2A	EL7532, ISL8012*	EL7532, ISL8012*	ISL6420A, ISL8502	ISL6420A, ISL8500*, ISL8560*
	I_{CCIO} = 3A	ISL8013*, ISL6527/A	ISL8013*, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
	I_{CCIO} = 4A-6A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL6527/A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
V_{CCIO} = 1.8V	I_{CCIO} ≤ 600mA	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 1A	ISL8011, ISL8009*	ISL8011, ISL8009*	ISL6420A, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 2A	EL7532, ISL8012*	EL7532, ISL8012*	ISL6420A, ISL8502	ISL6420A, ISL8500*, ISL8560*
	I_{CCIO} = 3A	ISL8013*, ISL6527/A	ISL8013*, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
	I_{CCIO} = 4A-6A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL6527/A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
V_{CCIO} = 2.5V	I_{CCIO} ≤ 600mA	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 1A	ISL8011, ISL8009*	ISL8011, ISL8009*	ISL6420A, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 2A	EL7532, ISL8012*	EL7532, ISL8012*	ISL6420A, ISL8502	ISL6420A, ISL8500*, ISL8560*
	I_{CCIO} = 3A	ISL8013*, ISL6527/A	ISL8013*, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
	I_{CCIO} = 4A-6A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL6527/A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
V_{CCIO} = 3.3V	I_{CCIO} ≤ 600mA	ISL6410, ISL8010	ISL6410, ISL8010	ISL8502, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 1A	ISL8011, ISL8009*	ISL8011, ISL8009*	ISL6420A, ISL8501*	ISL6420A, ISL8501*
	I_{CCIO} = 2A	EL7532, ISL8012*	EL7532, ISL8012*	ISL6420A, ISL8502	ISL6420A, ISL8500*, ISL8560*
	I_{CCIO} = 3A	ISL8013*, ISL6527/A	ISL8013*, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A
	I_{CCIO} = 4A-6A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL6527/A	EL7554, EL7556, ISL8014*, ISL65424*, ISL65426, ISL8105/A/B	ISL6420A, ISL8105/A/B, ISL8104	ISL6420A

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