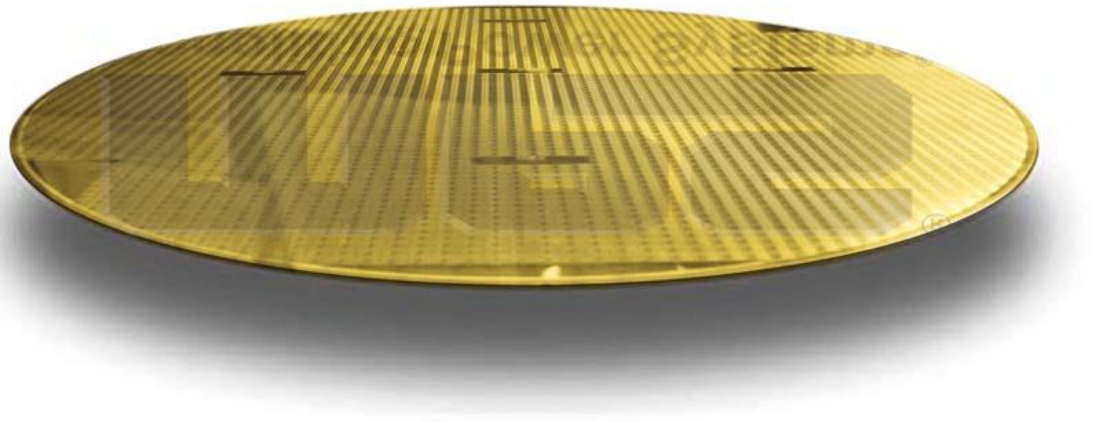
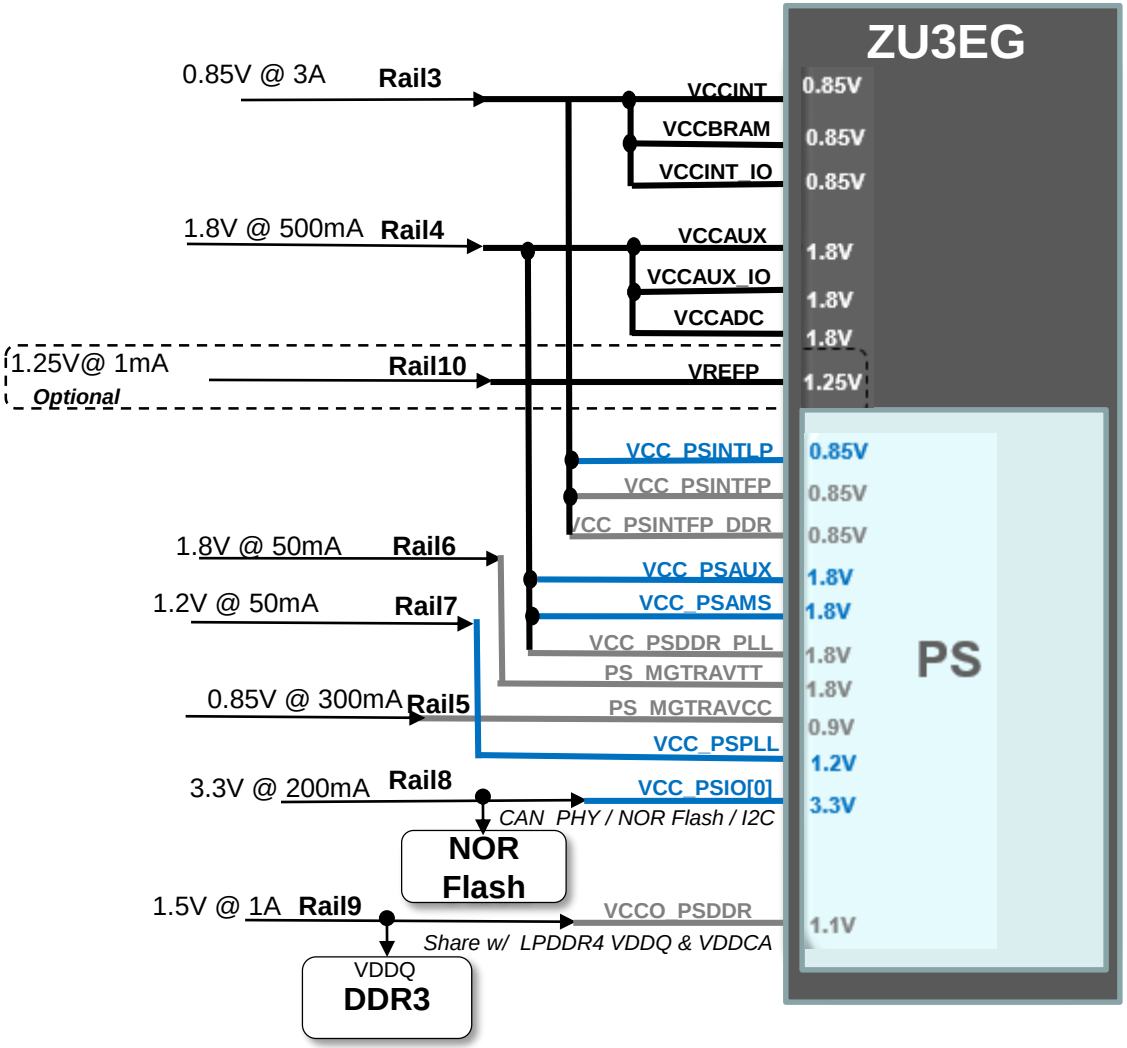
Monolithic Power Systems®



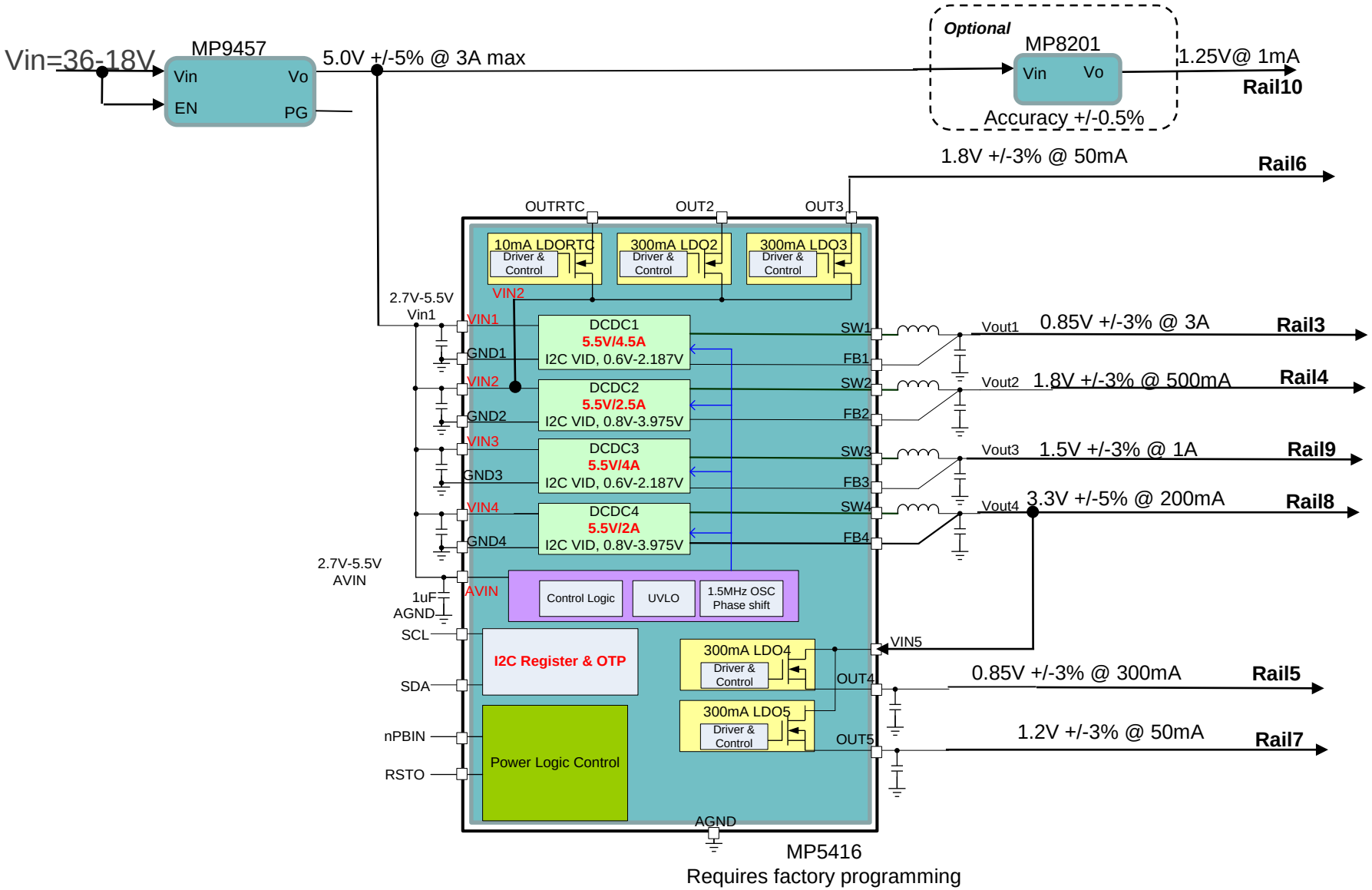
Reference design – Xilinx ZU3EG Industrial Networking Solution (using PMIC)

Last update: 1/18/17

ZU3EG Industrial Networking Solution



ZU3EG Industrial Networking Solution – MPS solution using PMIC



Power specs– ZU3EG Industrial Networking Solution

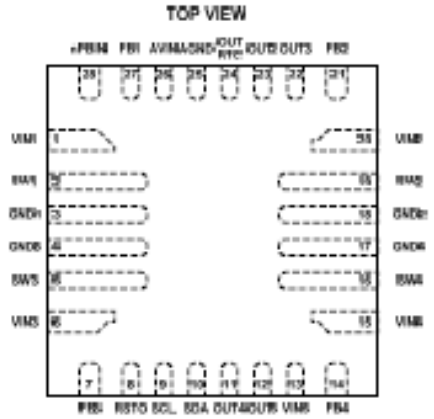
Rail #	VIN (V)	Rail	VOUT (V)	Load (mA)	Seq	MPS part#		Footprint
					Up/Dwn		(Iout max)	
2	18-36	Intermediate rail	5 ± 5%	3000		MP9457	(3A)	TSSOP-20 EP 6.6x6.6mm
3	5	VCCINT, VCCBRAM, VCCINT_IO	0.85 ± 3%	3000	1 / 3	PMIC MP5416	Vout1 (4.5A)	QFN-28 4x4mm
4	5	VCCAUX, VCCAUX_IO, VCCADC, VCC_PSAUX, VCC_PSAMS, VCC_PSDDR_PLL	1.8 ± 3%	500	2 / 2		Vout2 (2.5A)	
5	5	VPS_MGTRAVCC	0.85 ± 3%	300	3 / 1		LDO4 (0.3A)	
6	5	VPS_MGTRAVTT	1.8 ± 3%	50	3 / 1		LDO3 (0.3A)	
7	5	VCCPSPLL	1.2 ± 3%	50	2 / 2		LDO5 (0.3A)	
8	5	VCC_PSIO	3.3 ± 5%	200	3 / 1		Vout4 (2A)	
9	5	VCCO_PSDDR	1.5 ± 3%	1000	3 / 1		Vout3 (4A)	
10	5	VREF (optional)	1.25 ± 0.2%	1	3 / 1	MP8201	(0.002A)	SOT-23 3x2.6mm

MP5416
PMIC with 4xBucks and 5xLDOs

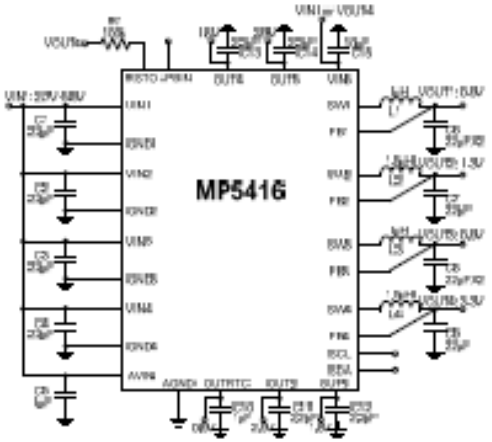
FEATURES:

- **High Efficiency Step-Down Converters**
  - 4.5A / 2.5A / 4A / 2A Bucks
  - 2.7V to 5.5V Operating Input Range
  - Adjustable Switching Frequency
  - Programmable Forced PWM/Auto PFM/PWM Mode
  - Hiccup Over Current Protection
- **Low Dropout Regulators**
  - One RTC Dedicate LDO
  - Four Low Noise LDOs
  - Two Separate Input Power Supplies
  - 100mV Dropout at 300mA Load
- **System**
  - I2C Bus and OTP
  - Power On/off Button
  - Power On Reset Output
  - Flexible Power On/off Sequence via OTP
  - Flexible DC/DC, LDO On/off via OTP

Package: QFN28 - 4mmx4mm

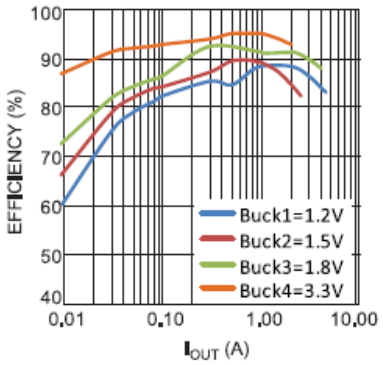


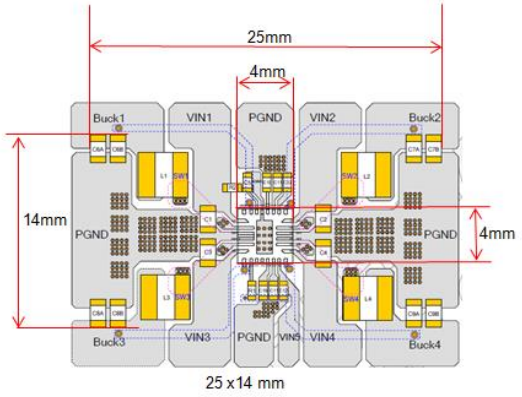
Application Circuit



Efficiency vs. Load Current

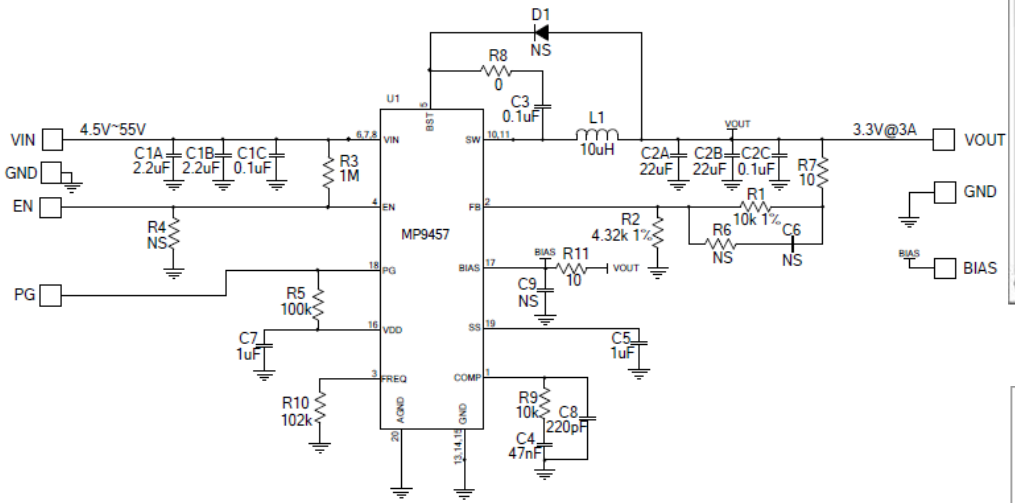
V_{IN}=5V, Auto PFM/PWM Mode



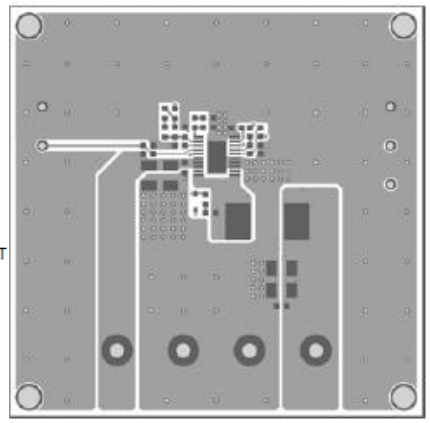


Recommended Layout MP9457

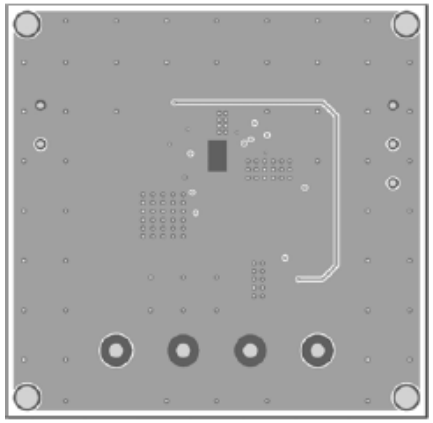
Schematics (Typical)



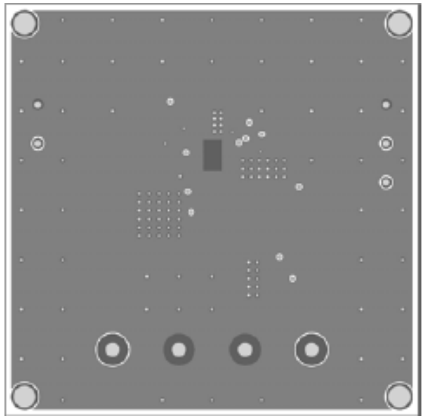
Layout guidelines



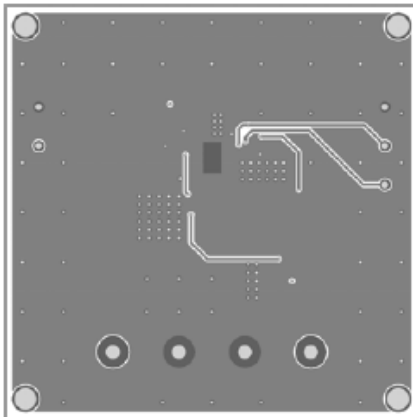
Top Layer



Bottom Layer



Inner Layer 1



Inner Layer 2

MPS design highlights– (PMIC)

- MP9457
  - High Efficiency
  - Cost effective
- MP5416
  - High integration
    - 4x Bucks
    - 5x LDOs
  - Minimum External Components
  - I2C control
  - Built in sequencing
  - Factory set voltages

For additional information please contact

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at referencedesign@monolithicpower.com

For general information

http://www.monolithicpower.com