

## Power Solutions for Freescale QorIQ Processors - Layerscape and T-Series

### Why IR Power Management:

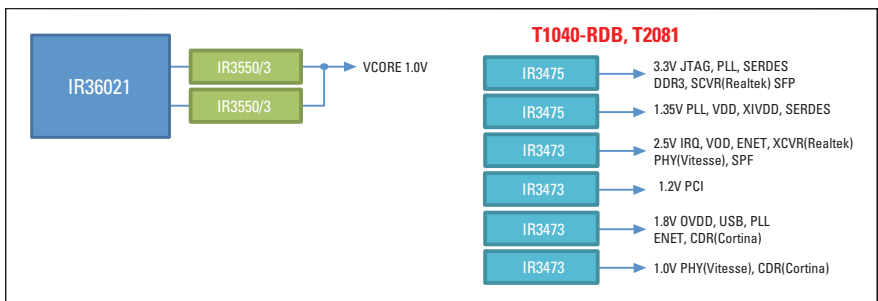
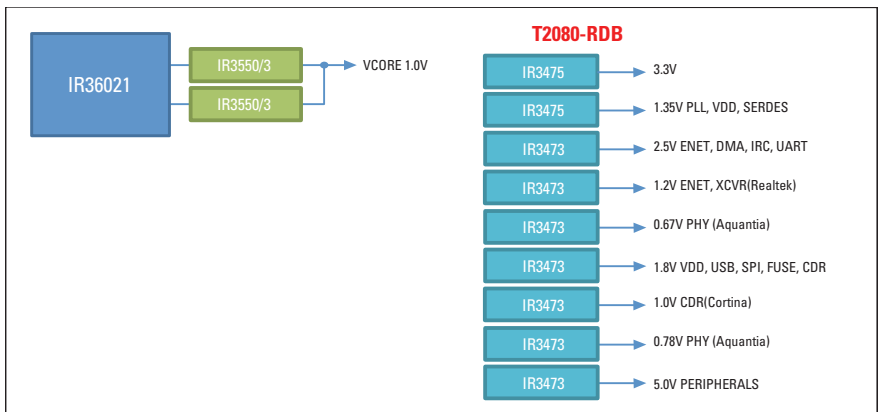
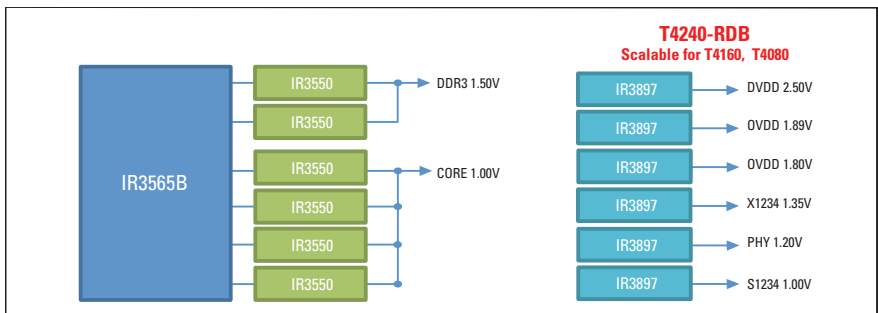
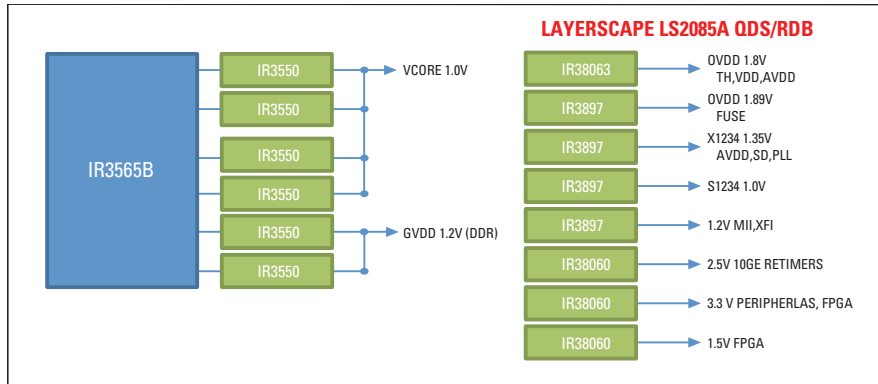
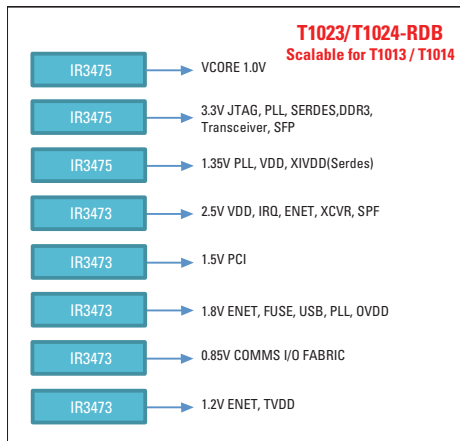
- Freescale – IR Power Partnership
  - DC/DC Converters for all power rails
  - MOSFETs
- Only solution capable of  $\pm 3\%$  total accuracy
- Digitally controlled by QorIQ via VID
- Core, Platform, Serdes Rails
- Industrial Qualification ( $-40^{\circ}\text{C} < T_j < +125^{\circ}\text{C}$ )

### Applications:

- Networking: Enterprise, Datacenter
- Medical Imaging
- Industrial: Automation, Smart Grid
- Aerospace/Defense
- Telecom: Basestation, Pico/Femtocell

### Support Tools:

- Graphical User Interface
- On-line simulation tools
- Demoboard + Reference Design Kit
- Schematics, layout and design collateral available

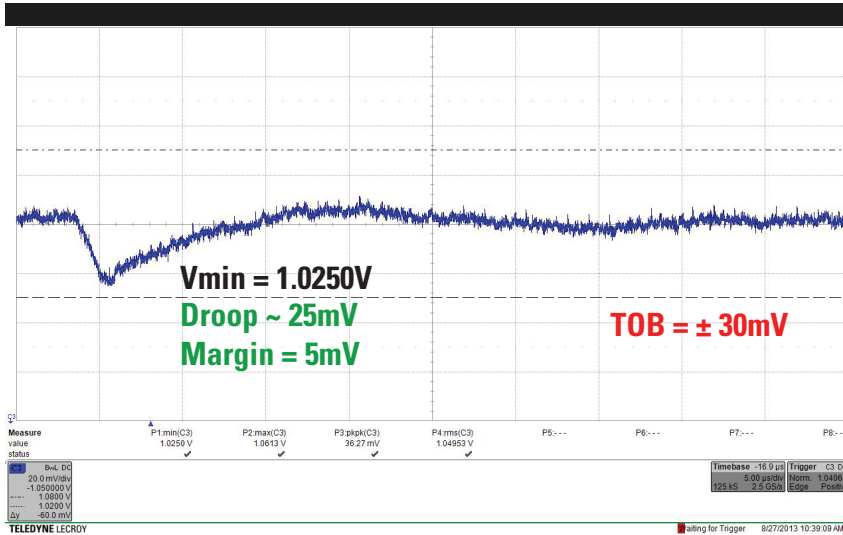


<http://mypower.irf.com/freescale>

### QorIQ T-series Voltage Accuracy

The new T-series family of QorIQ processors from Freescale demand the highest accuracy voltage regulators in order to maximize their performance. The T-series moves the bar from  $\pm 5\%$  to a mere  $\pm 3\%$  total allowable tolerance including DC, AC, ripple and transient. Only International Rectifier's family of Digital Controllers are qualified to meet these challenging specifications.

#### T4240 Load step (37.5A – 53.5A) with IR3565B

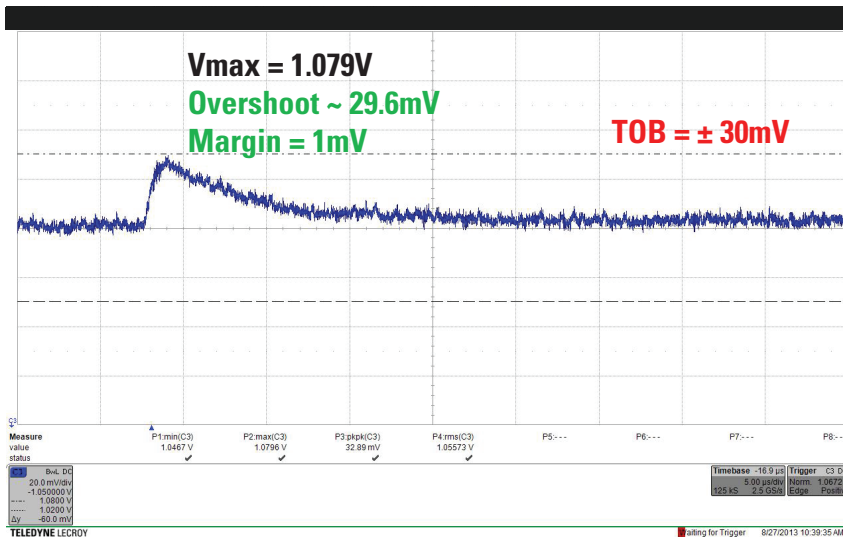


#### Voltage Specifications:

- Total voltage tolerance  $\rightarrow \pm 30\text{mV}$
- Overshoot excursions  $< 50\text{mV}$  okay
- Current step Slew rate  $12\text{A}/\mu\text{s}$
- Vboot = 1.05V
- VID Range: 0.975V – 1.025V

IR's digital controllers are specifically optimized to utilize non-linear closed loop feedback and predictive control to meet the challenging QorIQ T-series transient specifications. For smaller transients and for steady state operation, IR's digital controllers default back to fixed frequency, linear voltage mode control for reliable, predictable operation.

#### T4240 Load Release (53.5A – 37.5A) with IR3565B



#### Digital Bus Control

The output voltage settings of IR's digital controllers are dynamically controlled via a digital interface to the host processor. These voltage settings are optimized to ensure that the installed QorIQ T-series processor operates at its maximum performance within allowed performance/sleep states.

#### More Information at:

