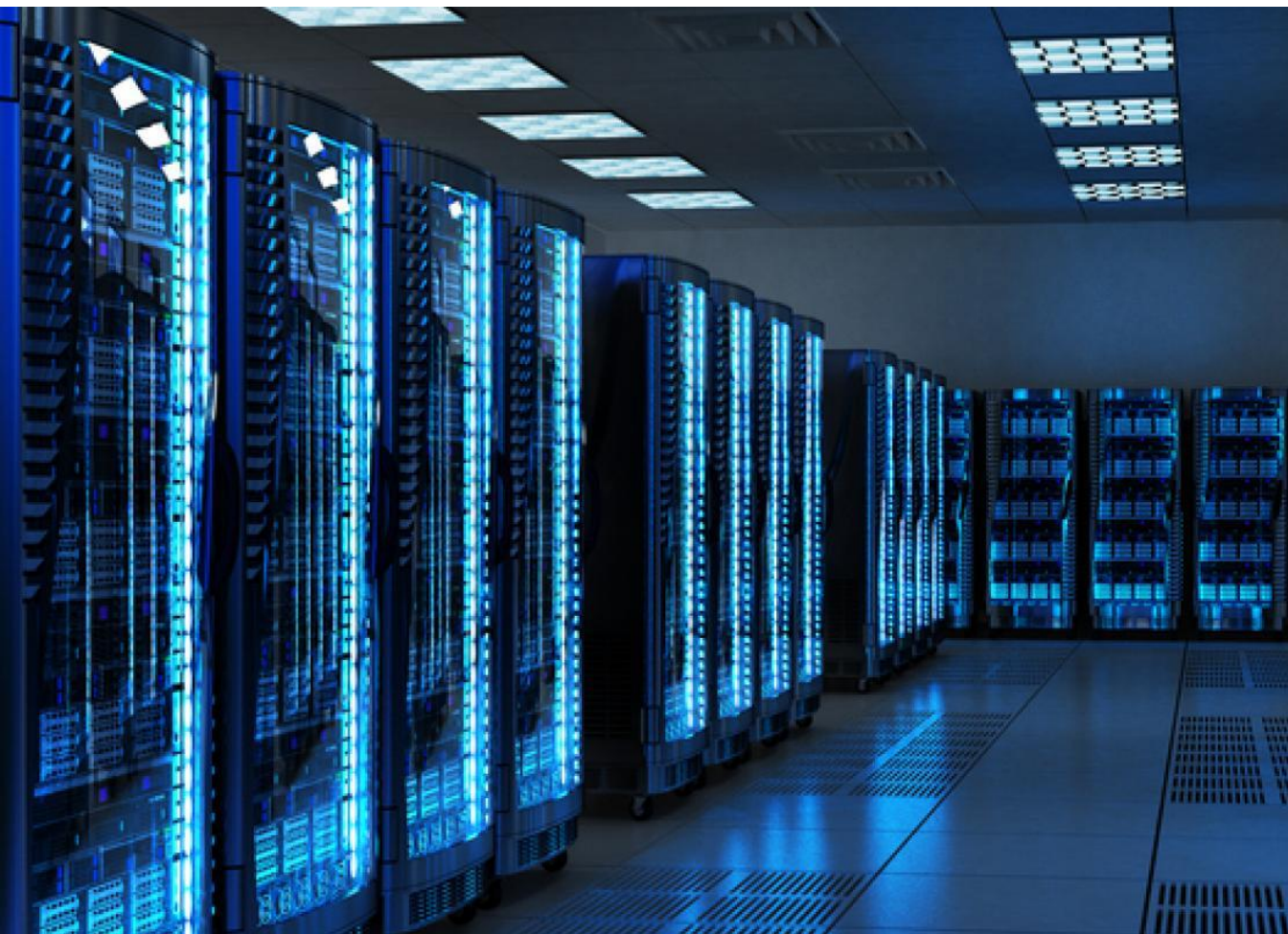


Data Center Power Delivery



Complete Solution from AC to POL



AC/DC: 90V-265V to 48V, 500W TDC



DC/DC First Stage: 48V to 12V (Reg)



DC/DC Second Stage: 12V to CPU



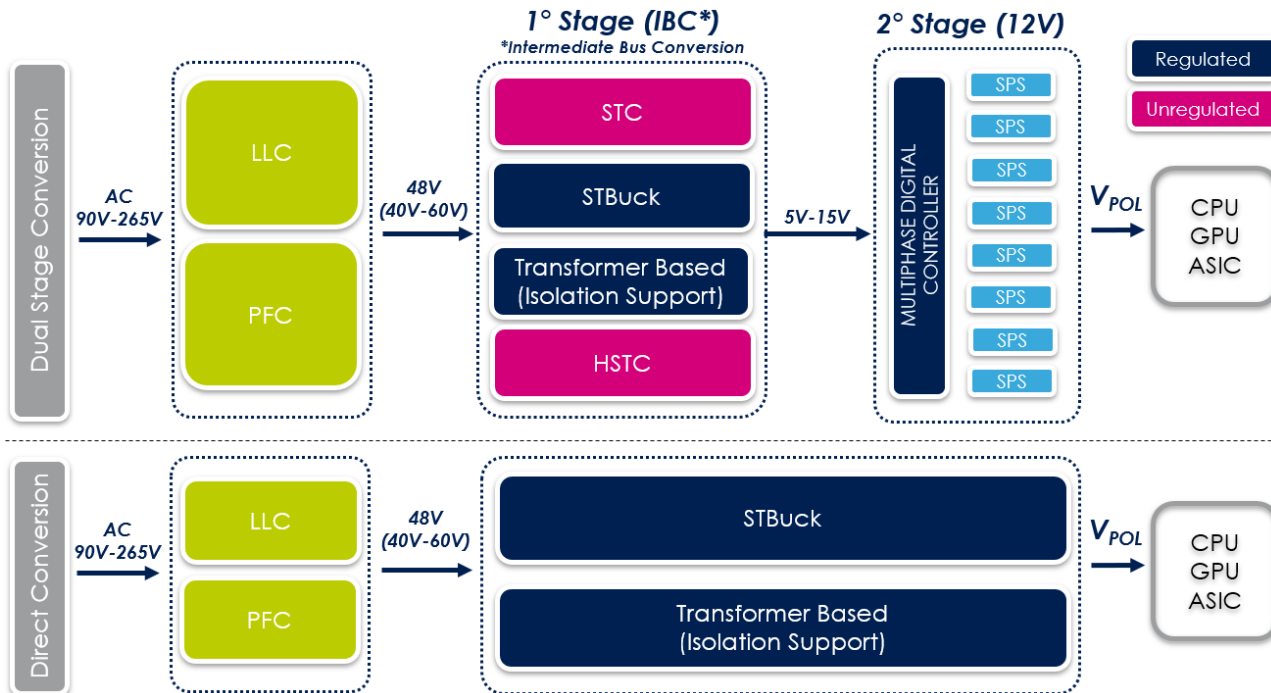
Complete solution from AC to POL

Wide Selection of Architectures from AC to POL

Highlights

- Peak Efficiency: 91.6% from 230VAC to 1.8VDC
- State-of-the-art 48V to 12V Topologies
- Innovative Digital Multiphase Topology for 12V to CPU

Complete solution from AC to POL



Semi-bridgeless PFC Topology Operating in CCM plus Resonant LLC Converter.

**First Stage (IBC):
Regulated or Un-Regulated Output**

**Second Stage:
Digital Multiphase Architecture (STVCOT)**

AC/DC front end

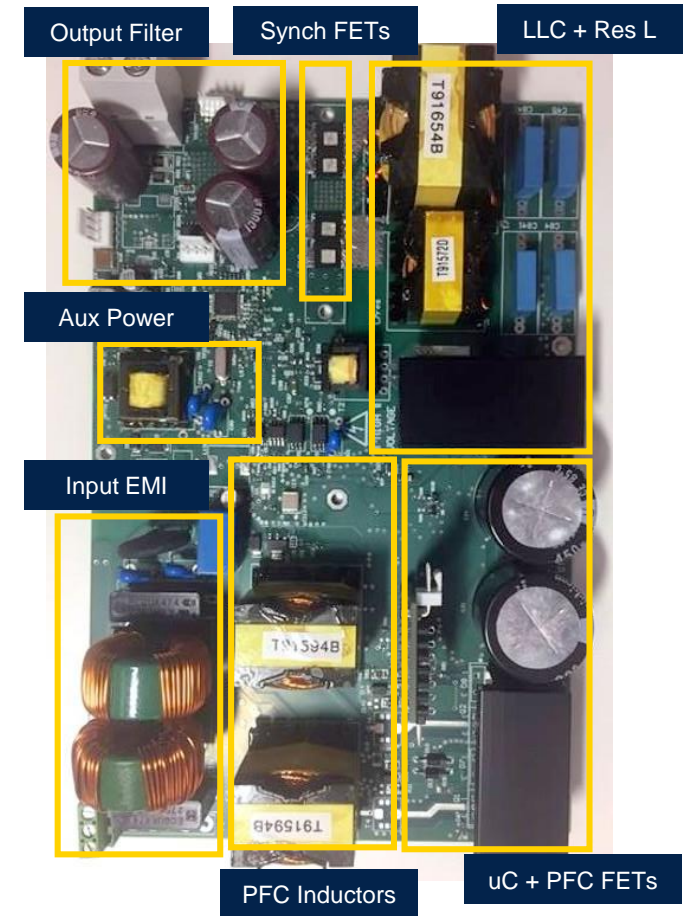
AC/DC: 90V-265V to 48V, 500W TDC

Highlights

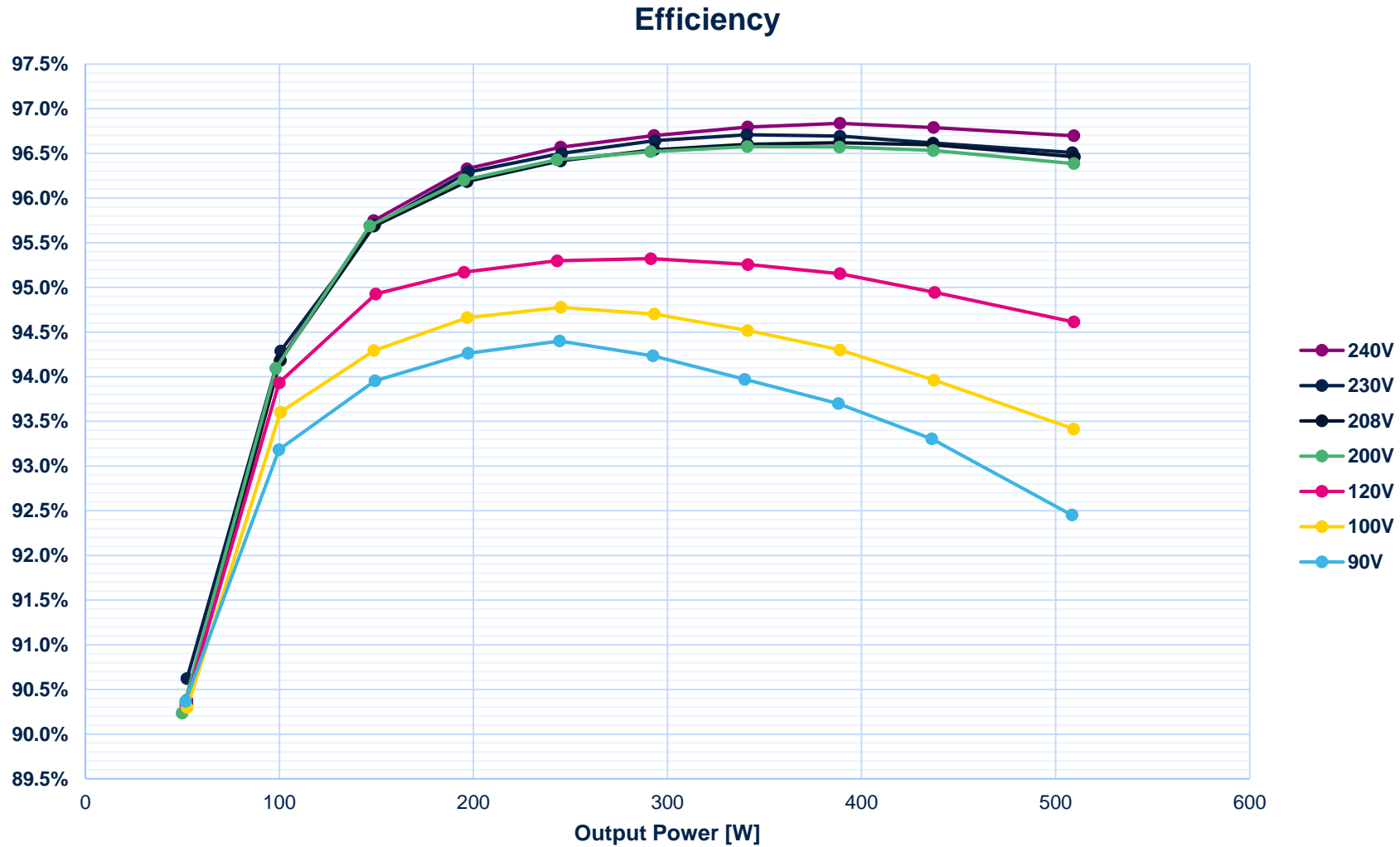
- Peak Efficiency: 96.8% @ 230VAC input
- ITHD%<10% @ 50% Load on Full Input Voltage Range
- PF>0.9 @ 50% Load on Full Input Voltage Range

500W, 90VAC-265VAC to 48VDC reference design

- Input Voltage: 90VAC-265VAC
- Output Power: 500W TDP (Scalable up to 650W)
- Output voltage: 48VDC (50V Option with Simple FW Upgrade)
- Peak Efficiency: 96.8% @ 230VAC Input
- ITHD%<10% at 50% Load in the Full Input Voltage Range
- PF>0.9 at 50% Load in the Full Input Voltage Range
- PFC topology: Semi-Bridgeless PFC Operating in CCM
- PFC Switching Frequency: 60kHz
- Regulation Stage Topology: Resonant LLC Converter
- Switching Frequency at Resonance: 130kHz
- Possibility to Boost Resonant Frequency 200kHz



500W, 90VAC-265VAC to 48VDC efficiency



DC/DC first stage: 48V to 12V

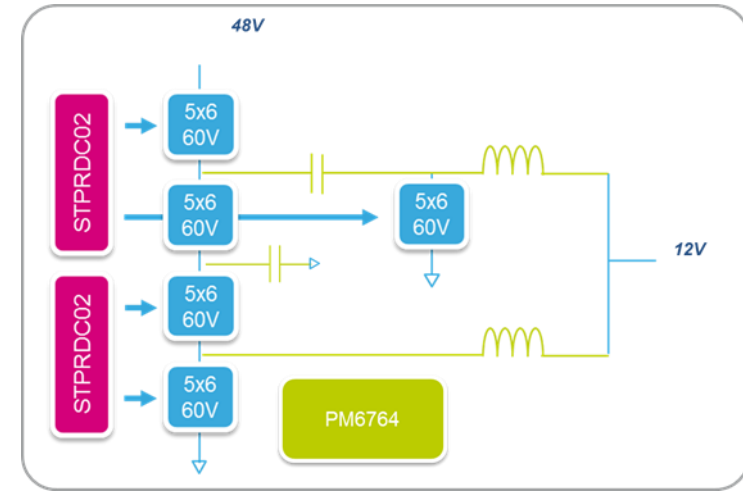
Stacked Buck (STB) Topology: 36VDC-60VDC to 12VDC Regulated

Highlights

- Peak Efficiency: 98.5% @ 54V Input
- 36V-60V V_{in} to 12V V_{out} Regulated Scalable Architecture
- 800W in 55mm x 25mm, 3.2KW in 75mm x 140mm

Stacked buck (STB) topology

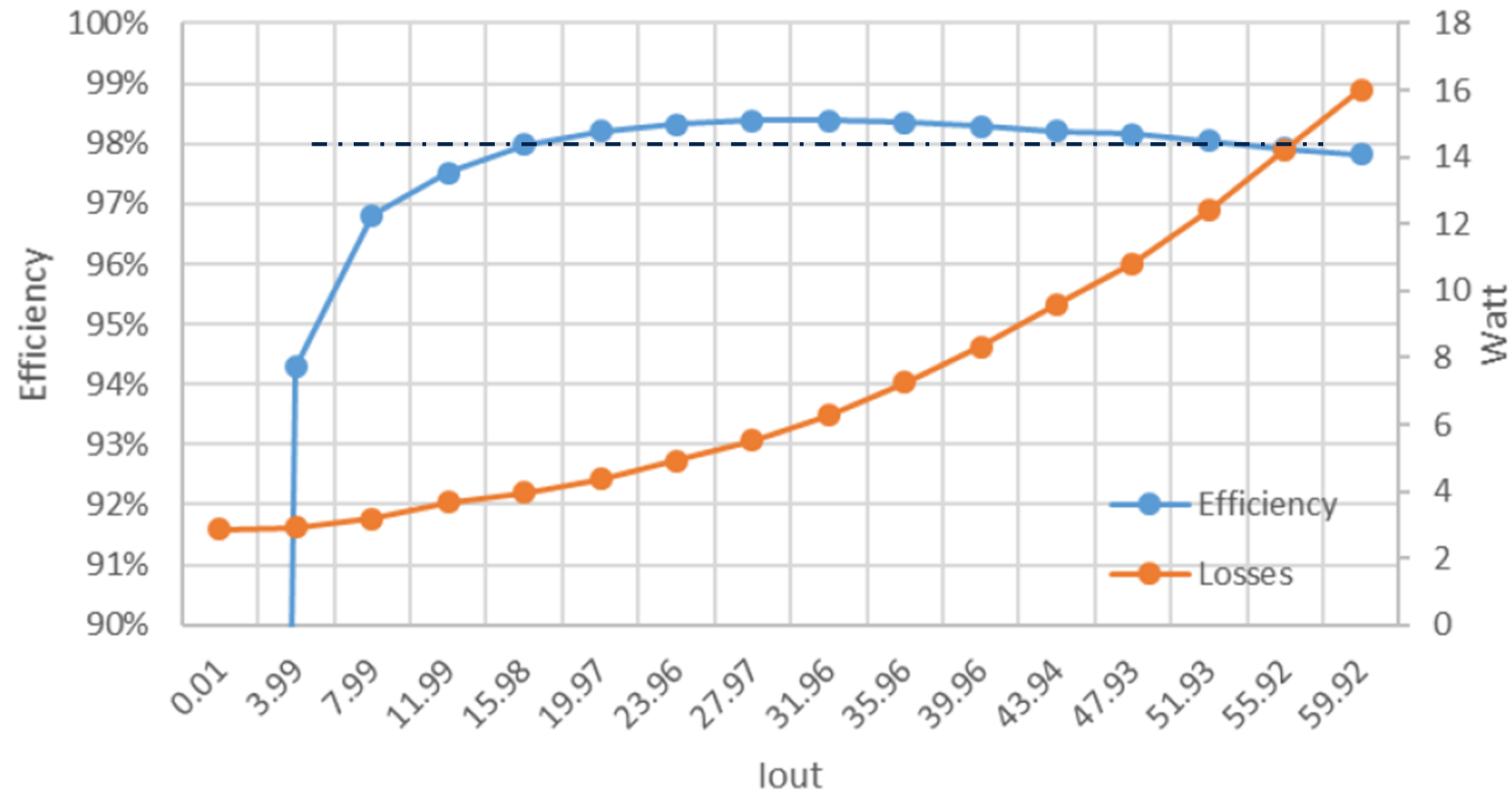
- Regulated Output Architecture
- Input Voltage: 36V-60V
- Output Voltage: 12V
- Peak Efficiency: 98.1%
- Optimized for Conversion Ratio up to 4:1
- 800W TDC Basic Cell (25mm x 55mm)
- 4 Interleaved Cells for Total Power of 3.2kW
- Suitable for Both IBC or Direct Conversion
- 3.2KW 4 Cells Size: 75mm x 140mm
- Off the Shelf Parts BOM
- Use of MP Chipsets



3.2KW Reference Design

800W cell stacked buck efficiency

Vin=54V, Vout=12V



DC/DC second stage: 12VDC to POL

Digital Multiphase Architecture (STVCOT)

Highlights

- Peak Efficiency: 96.1% @ Pout=360W
- ST Patented VCOT Digital Control Loop
- Extended Compliance: VR13VR14, AMD SVI3, AVS BUS

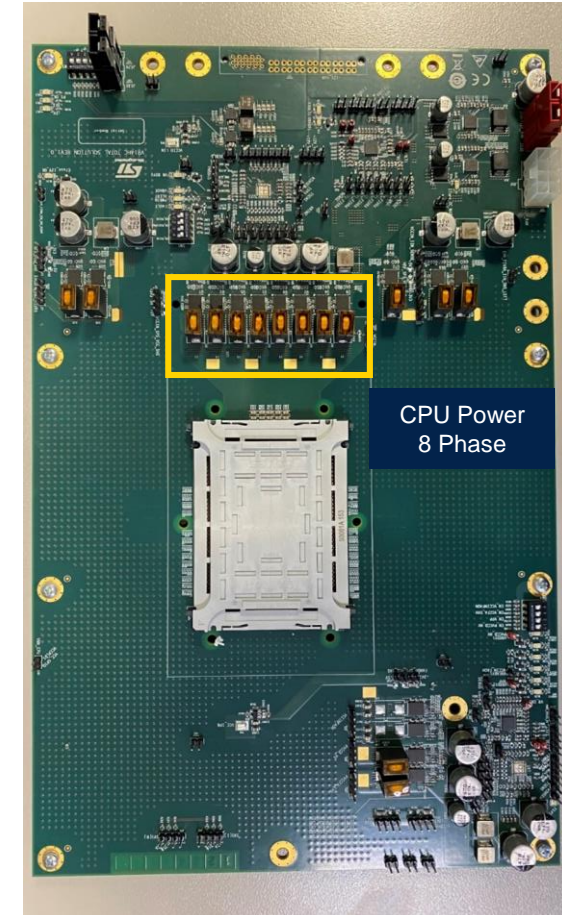
DC/DC 12V to POL complete solution

PM6779/80: Multi-Platform Digital Multiphase Controller

- Dual Loop Programmable N+M Phase: from (8+0) up to (4+4)
- High-Performance Digital Control Loop (Digital STVCOTTM)
- Auto DPM – Autonomous Dynamic Phase Shedding
- Remote Sense; <0.5% VOUT Accuracy with calibration

PM7080, PM7060, PM7050: Smart Power Stage (SPS)

- Up to 80 A Continuous Current
- High Frequency Operation up to 2 MHz
- 30nsec PWM Minimum Controllable on Time
- Thermally Enhanced QFN 5x6 41L Package



DC/DC 12V to POL efficiency

