

CONNECTING, PROTECTING AND POWERING THE WORLD

# Solutions

## ENTERPRISE SOLID STATE DRIVES



DATA CENTER



CLOUD COMPUTING



SERVERS



NETWORKING

### FEATURING

PMIC+PLP

Standalone PLPs

Standalone PMICs

QORVO

The Qorvo logo is centered in the upper half of the page. It consists of the word "qorvo" in a lowercase, white, sans-serif font. The letter "o" is stylized with a horizontal line through its center. A registered trademark symbol (®) is located at the top right of the word. The background is a dark blue gradient with several overlapping, semi-transparent circles and shapes in various shades of blue, creating a modern, abstract design.

CONNECTING,

PROTECTING

AND POWERING

THE WORLD

# eSSD APPLICATIONS

NETWORKING



SERVERS



CLOUD COMPUTING



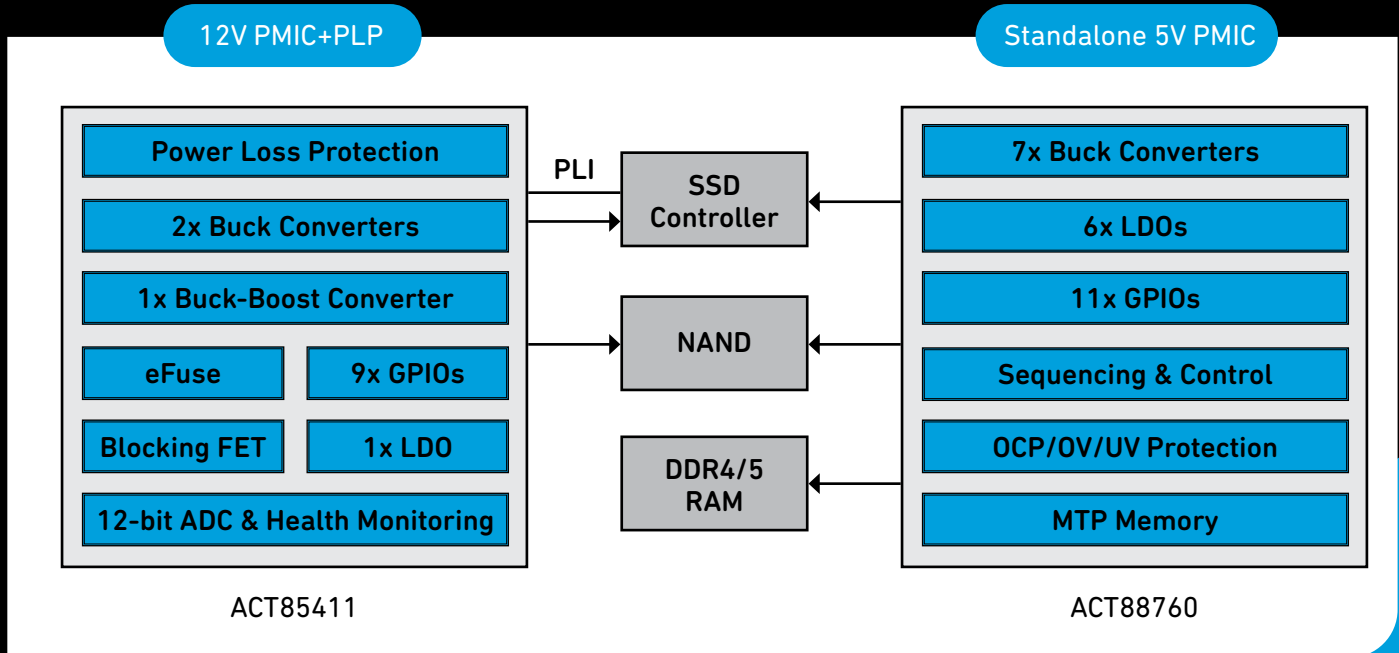
DATA CENTER



## Advanced Power Portfolio

- ✓ **Robust IP library:** Standalone PLP and PMICs across low/medium/high voltages, plus PMIC+PLP SoC options.
- ✓ **Modular designs:** Defined-interface, tile-based IP blocks help accelerate development cycles.
- ✓ **Multi-time configurability:** ActiveCiPS™ rails and sequencing (GPIO/I<sup>2</sup>C) allow SKU changes without a board respin.
- ✓ **Trusted supplier:** Proven with leading SSD controller partners for highly-configurable solutions and supply-chain strength.

# eSSD BLOCK DIAGRAM



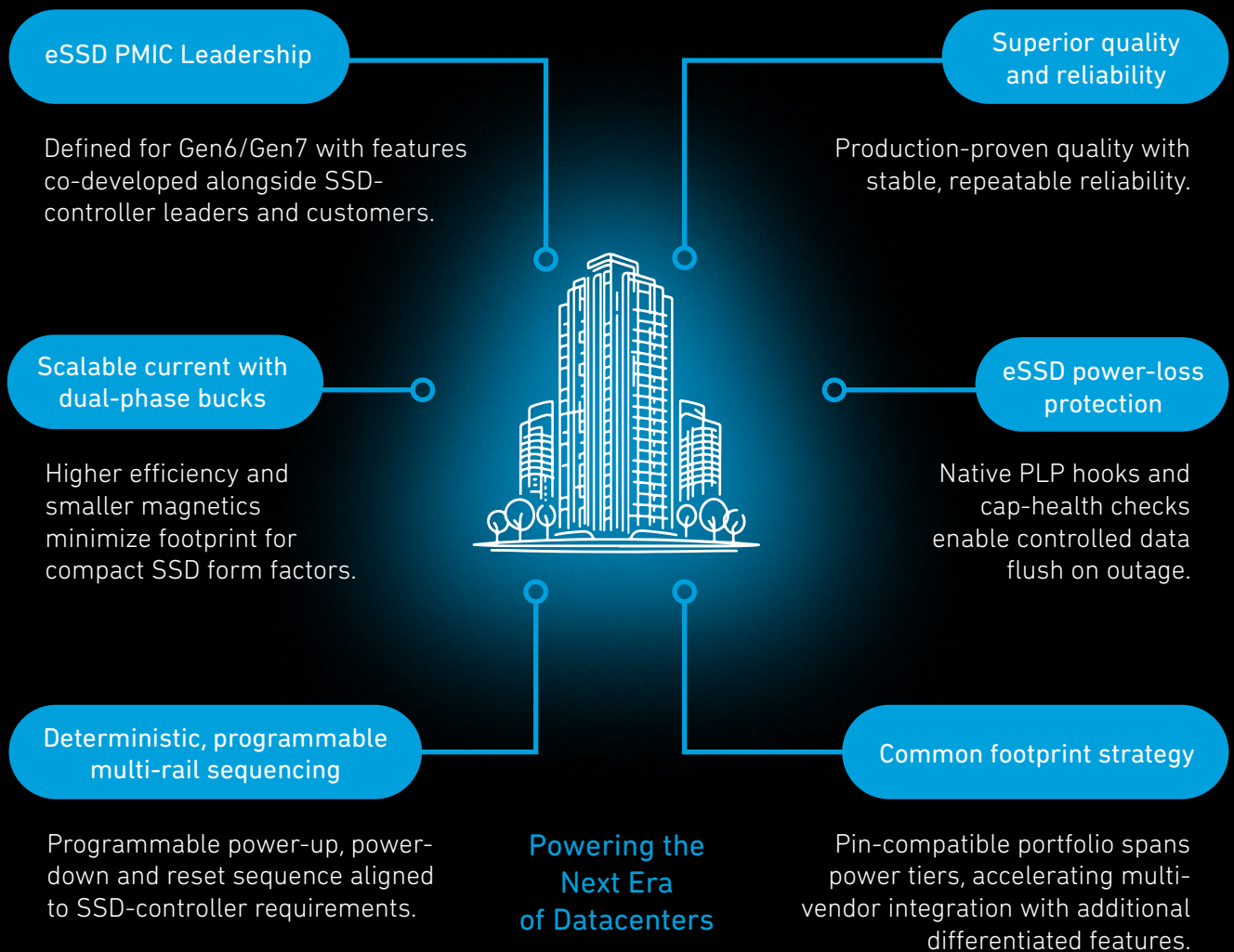
ACT85411 PMIC+PLP and ACT88760 PMIC powering multi-rail FPGA controller and NAND interface in enterprise SSD system.

Look for  
blue blocks!

Qorvo content shown in blue blocks

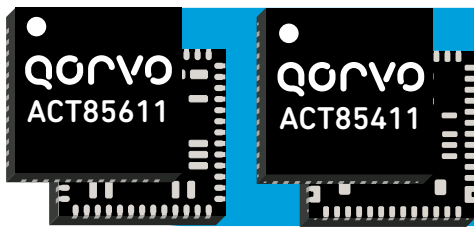
# BRIDGING GAPS WITH INNOVATIVE SOLUTIONS

## For Today's Challenges



# POWER MANAGEMENT

## 12V PMIC+PLP



High-Efficiency, Integrated PMIC+PLP  
Solution for eSSD

Integrated PMIC+PLP synchronizes hold-up, sequencing and protection – delivering deterministic flush and clean shutdown. Per-rail configurability via I<sup>2</sup>C/GPIO accommodates evolving eSSD power trees with fewer parts. Programmable storage-capacitor voltage optimizes capacitor sizing and further shrinks footprint.

	ACT85611	ACT85411
Input Voltage	2.7–14V	2.7–14.8V
E-Fuse	20V	20V
Integrated PLP	Yes	Yes
Charger	31V Storage Cap Charger	31V Storage Cap Charger
Buck Regulators	3 @ 4A, 1 @ 2A, 1 @ 100 mA	2 @ 10A, 1 @ 200 mA
Boost Regulators	1 @ 1A (12V Boost)	1 @ 1A Buck/Boost
Linear Regulators	1 @ 300 mA/50 mA	1 @ 200 mA
GPIOs	7	9
Features	12-bit ADC, Cap Health Monitor, Blocking FET for Storage Caps	12-bit ADC, Cap Health Monitor, Blocking FET for Storage Caps, High Current Bucks
Package	6.0x6.0 mm 52p FCQFN	6.0x6.0 mm 52p FCQFN

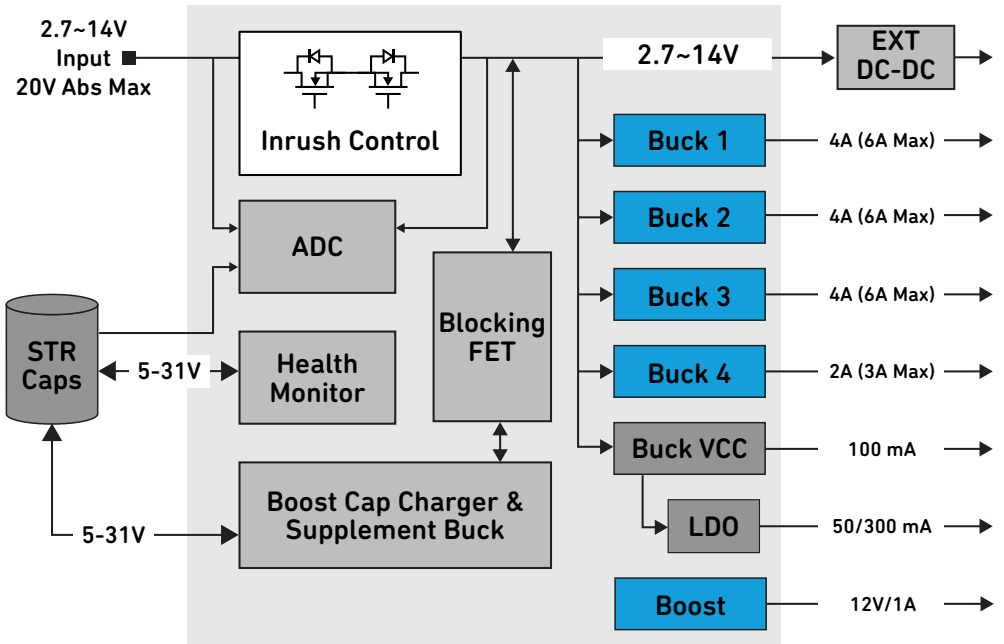


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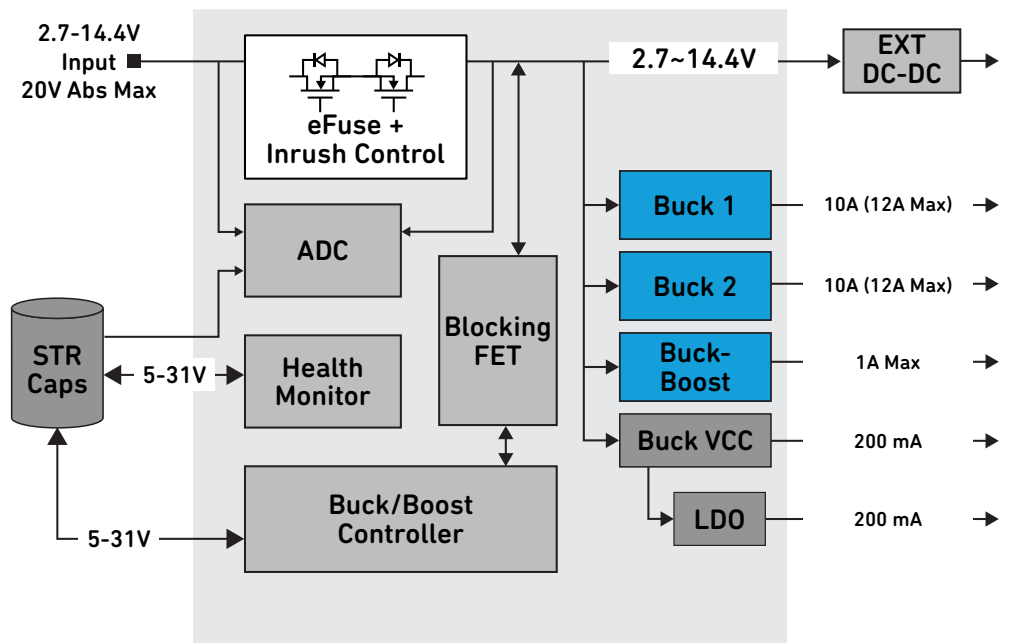


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### ACT85611



### ACT85411



# POWER MANAGEMENT

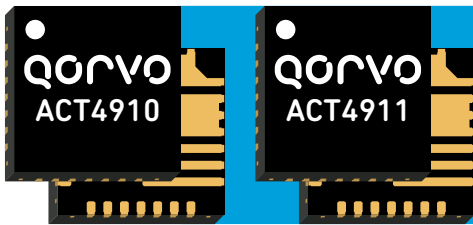
## Standalone PLPs



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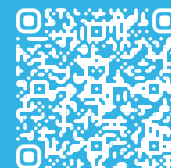
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Highly-Integrated Standalone PLPs for eSSD

ACT491x PLP devices are designed to maintain eSSD operation through power loss, lowering data-loss risk and RMAs. Integrated health-monitoring telemetry alerts the system when hold-up energy is insufficient for backup power. These devices also feature a programmable storage-capacitor voltage to optimize capacitor area and extend hold-up time.

	ACT4910	ACT4911
Operating Input Voltage	2.7–18V	2.7–8V
E-Fuse (Abs Max)	24V	10V
eFuse FET Rds(on)	17 mΩ	17 mΩ
Storage Cap Voltage	5V ~ 36V Boost	5V ~ 36V Boost
Maximum Input Current	10A	10A
Buck Current	6A	6A
Blocking FET	No	No
I <sup>2</sup> C Interface	Yes	Yes
Autonomous Health Monitoring	Yes	Yes
ADC	Yes	Yes
Package	5x5 FCQFN (28 leads)	5x5 FCQFN (28 leads)



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# POWER MANAGEMENT

## Standalone 5V PMIC

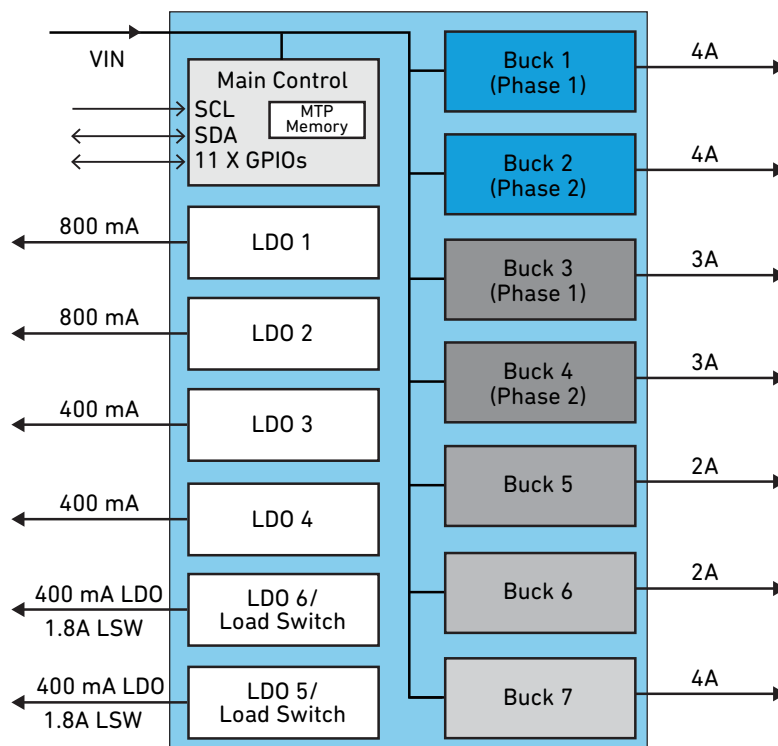
**QORVO**  
ACT88760

### 13-Voltage-Rail PMIC for eSSD Applications

Designed for dense eSSD layouts, the highly-integrated 13-rail PMIC provides low-voltage efficiency, reliable sequencing and low standby power to boost rack-level capacity and reliability. Its configurable power blocks can deliver up to 25 A total across all outputs for high-current core domains.

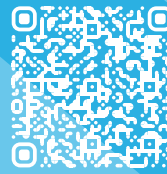
#### Product Features

- Input 2.7-5.8V
- Bucks:
  - 3×4 A (8A dual phase)
  - 2×3 A (6A dual phase)
  - 2×2 A
- LDOs:
  - 2×800 mA
  - 4×400 mA
- Two of the LDOs configurable as load switch
- 10 GPIOs
- 3.85×3.85 mm, 81 ball WLCSP package

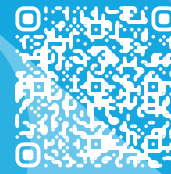


# POWER MANAGEMENT

## Standalone PMICs



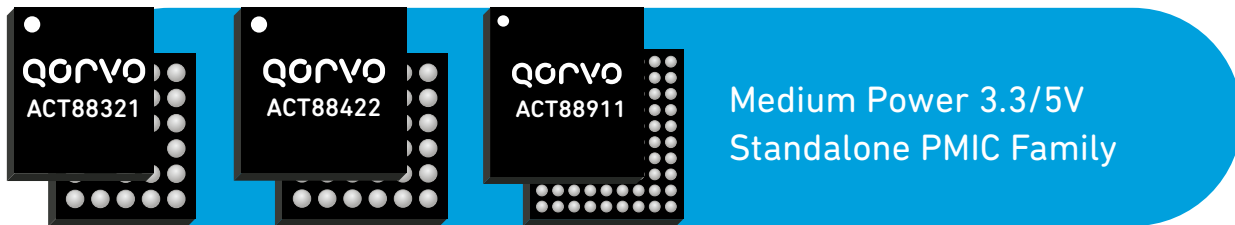
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Scalable eSSD PMIC lineup delivers up to 19 rails with efficient low-voltage power, reliable sequencing and low standby draw. These configurable, compact PMICs shrink BOM and board area, making them ideal for dense layouts and accelerated validation.

	ACT88321/9	ACT88422	ACT88911
Input Voltage	2.7–5.5V	2.7–5.5V	2.7–5.5V
Buck Regulators	2 @ 4A 1 @ 2A	2 @ 4A 2 @ 2A	2 @ 5A (10A DP) 3 @ 1A
Boost Regulators	–	–	2 @ 1A Buck-Boost 2 @ 12V/30 mA
Linear Regulators	2 @ 390 mA	2 @ 400 mA	2 @ 200 mA 1 @ 30 mA 1 @ 10 mA
LDO+ LSW	1 of the 2 LDOs	2 of the 2 LDOs	3 @ 400 mA
LSW	1	–	3 @ 1.5A
GPIOs	4/7	8	10
Features	Buck1: Low $V_{OUT}$ (0.6V) Bypass Mode Buck 2 & 3: Low $V_{OUT}$ (0.5V)	Buck1+2 LDOs: Bypass Mode Buck 4 Can Be LDO	Buck 1&2 Dual Phase Interrupt, nRESET/PG Function
Package	2.18x2.58 mm, 30b WLCSP	2.69x2.69 mm, 36b WLCSP	3.76x4.16 mm, 90b WLCSP

# PARTS OVERVIEW

PMIC+PLP



PLP + multi-rail PMIC with 3 bucks, 1 boost, 1 LDO and programmable sequencing.

PMIC+PLP



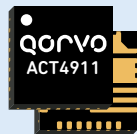
PLP + multi-rail PMIC with 5 bucks, 1 boost, 1 LDO and programmable sequencing.

PLP



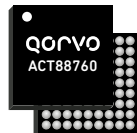
Standalone PLP IC with cap charging, rapid switchover, status/health and protections.

PLP



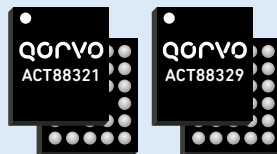
Standalone PLP IC with cap charging, rapid switchover, status/health and protections.

PMIC



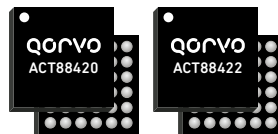
13-rail PMIC with 7 bucks, 6 LDOs/LSW and programmable sequencing.

PMIC



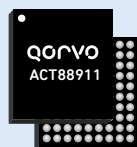
Tiny PMIC with 3 bucks and 2 LDOs/LSW and programmable sequencing.

PMIC



Tiny PMIC with 4 bucks and 2 LDOs/LSW and programmable sequencing.

PMIC



High-current PMIC with 4 bucks (2 dual-phase), 2 buck-boosts, 2 boosts, 3 LDOs/LSW, 3 LSW and programmable sequencing.



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