AnDAPT Adaptive Multi-Rail Power Platform B – AmP

AmP8DB6

Product Description

The AmP™ device is an FPGA based platform for creating a custom Power Management Integrated Circuit (PMIC). The AmP device is customized by adding available Power Components designs based on system requirements. AmP device customization is as easy as using WebAmp™ application software to produce a customized PMIC in a very short period of time. AmP devices can be used to power FPGAs, Processors, Microcontrollers, and ASICs by integrating multiple power rails into single chip designs. The AmP device input voltage range is 4.5V to 20V. The AmP device is targeted for wall-powered applications or 2S-4S Li-Ion battery packs. AmP devices have up to 4 additional integrated LDOs of which two are fixed output voltages (3.3V and 1.2V) and two are user programmable.

Features

- Platform_B incorporates several improvements over previous generation platform including:
  - Extended Vin range to minimum 4.5 V
  - Increased Efficiency up to 4% better than Platform A
  - Dynamic enable/disable of user programmable LDOs
  - Better resource utilization
  - Extended voltage reference range
  - Improved accuracy, ripple, and noise rejection
  - Reduced BoM
- Integrate application targeted Power Components
- Power Blocks for a variety of topologies
  - Scalable Integrated N-channel MOSFETs (SIM)
  - Current sense for protection, telemetry, regulation
  - Build Switching topologies - Buck, Boost, Buck-Boost
  - Build Linear topologies - LDO, Load Switch
  - Build Mixed topologies - Battery Charger
  - Build BLDC (Motor Control) topologies – H-Bridge
- Sensor Blocks, sensing voltages and currents
  - Regulation, protection and telemetry
  - Adaptive Digitizer (ADi)
  - Threshold Comparators (ThC)
  - Summation Amplifier (SuM)
  - Voltage Reference (Nref) Array
- Analog fabric connectivity for sensor signals
- Digital µLogic fabric connectivity: Analog/Digital Blocks
- Industry first: Analog Proficiency – Digital Flexibility

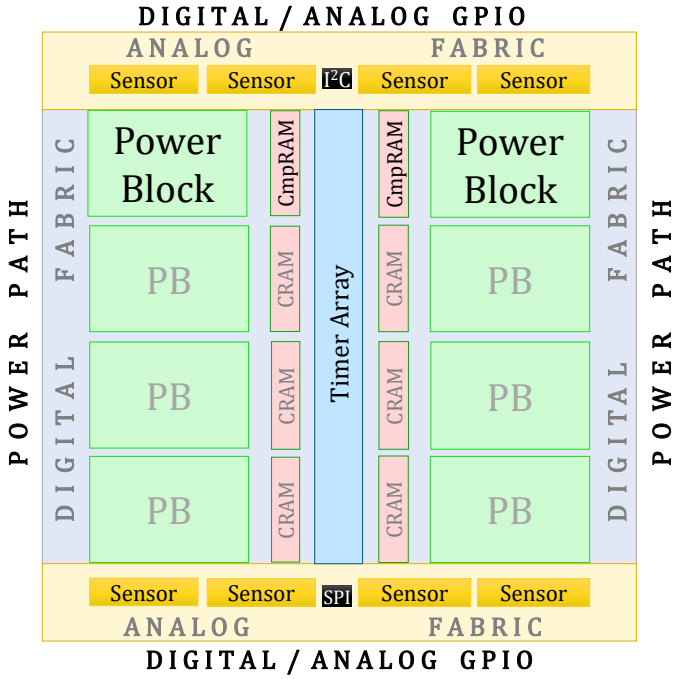
AmP Family

- 12 V platform family
  - Eight Power & Sensor Blocks
  - Up to eight switcher or linear rails
  - 6A per DMOS MOSFETs; RDSon 30mΩ
  - Analog or Digital I/Os: 23
  - Package: QFN 5x5 sq. mm
- Standard BCD process: 110nm, V_{DS}max 20V

AmP DMOS Platform

Power Blocks	GPIOs	Device
Eight	23	AmP8DB6

Adaptive Multi-Rail Power Platform – AmP



Applications

Power Component Integrator

- Build Buck, Boost, Buck-Boost POL topologies
- PWM – CV/CC, voltage mode or current mode
- COT – Constant-On-Time
- Load Switch, LDO - Source/Drain, DDR LDO
- External Switching Controllers/Gate Drivers
- Peak efficiency > 92%, Soft start/stop

Digital power management IC

- Monitor and throttle/margin power rails
- Power ON/OFF/Sequence power rails
- I²C, PMBus, DVS for Telemetry and control
- Protection: On-demand OCP, OVP, OTP, UVLO

AmP8DB6 Platform Features

Device			8DBx6
Drain Current			6A
Power Blocks			8
Sensor Blocks			8
Nrefs			24
Timers			16
Integrated LDOs			4
µLogic Fabric LUTs			512
Package			GPIOs
QF65	5x5mm	8D MOSFETs	23

*T_A: -40C to 85C, T_J: -40C to 125C;

Order Information

Platform	MOSFETs	Technology	Current – A	Package	Ordering Part Number	Availability
AmP	8	D	6	QF65	AmP8DB6QF65	Now

Package Marking Example – QF65