

General Description

The AOZ71124QI is a high performance digital & analog hybrid multiphase buck controller designed in compliance with Intel IMVP8, 9, and 9.1/9.2 platform specifications. It provides two output rails (up to 2 + 2) and supports 3 separate SVID domains. Up to 2 phases for core voltage domain (IA) and 2 phases for graphics voltage domain (GT) as well as the P_{SYS} domain's reporting functions, incorporated into a single SVID interface. AOS offers a novel AOS Advanced Transient Modulator (A²TM). It combines an advanced variable frequency hysteretic peak current mode control with proprietary phase current sensing scheme for fast transient response and low system cost. The control loop enhances light-load efficiency by seamlessly entering DCM mode of operation.

The AOZ71124QI is equipped with SMBus digital Interface enabling register programming for tuning and configuration to minimize the system components and eliminate the need for manual solder rework on the system board. Programmability can be done either by AOS GUI or customized ECS into the controller's built-in RAM. The controller also provides MTP to store register settings once the configuration is finalized.

Combined with AOS high performance DrMOS, the AOZ71124QI provides a complete power solution for Intel IMVP9.1/9.2 mobile platform VCORE applications. AOZ71124QI comes in a 5 mm x 5 mm 40-pin QFN package.

The AOZ71124QI controller features very low power consumption while still enabling digital interface control. This unique "Hybrid Digital" control scheme enables low quiescent power consumption in all power states as defined by the Intel IMVP9.1 platform to enable long system run times in battery life workloads.

The AOZ71124QI provides complete protection and warning functions including UVP, OVP, OCP and OTP. Fault protection behavior can be easily programmed through SMBus. AOZ71124QI also offers real time telemetry information via SMBus for V_{IN}, V_{OUT}, temperature, output currents, power states as well as PSYS/VSYS/IAUX pins reporting via SMBus.

Features

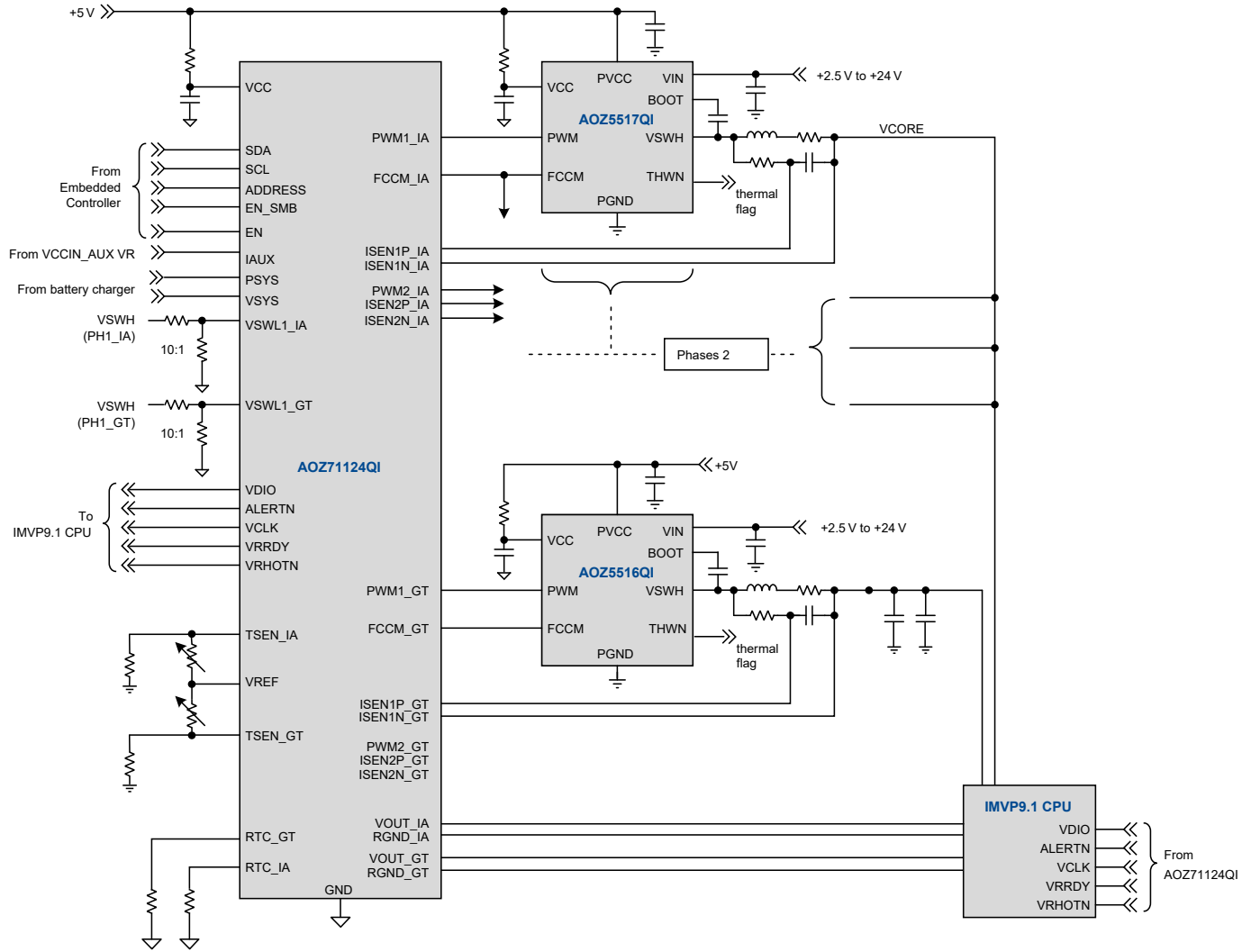
- 2.5V to 24V V_{IN} input supply voltage
- Dual output rails: 2/1 + 2/1 phases
- Digital & analog hybrid controller with SMBus programmability and lowest power consumption
- SVID Interface to CPU compliant with IMVP8, 9, and 9.1 /9.2 specifications
 - Support Fast V-Mode (FVM) to protect CPU
- Differential remote sensing to achieve 0.5% regulated V_{OUT} accuracy
- Low quiescent current: 2.92mA at PS0 for 2+1 configuration
- 38µA quiescent current at Intel PS4 state
- Supports multi-sourced industry standard DrMOS or driver + MOSFET power stages
- User friendly GUI for compensation and configurations with minimal external RC components.
- ECS programmability for configurations with Built-in MTP and RAM
- Proprietary, high performance AOS Advanced Transient Modulator (A²TM) control scheme:
 - Variable frequency hysteretic peak current mode control gives fast transient response
 - Dynamic phase current balance
 - Excellent load-line control and phase current sensing
 - Seamless CCM to DCM control to maximize efficiency
- System Input Power Monitoring (both P_{SYS} and V_{SYS})
- 400 kHz to 1.1 MHz programmable switching frequency
- Acoustic Noise Suppression
- Output Under-Voltage Protection (UVP)
- Output Over-Voltage Protection (OVP)
- Over-Current Protection (OCP)
- Over-Temperature Protection (OTP)
- QFN5x5-40L package

Applications

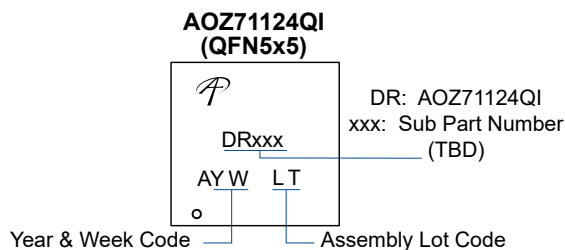
- Notebook computers
- Memory and graphic cards
- Video game console



Typical Application



Part Marking



Sub PN Marking	SKU	Project Descriptions	Full PN
xxx	ADL 15W Perf (2 + 1)		AOZ71124QI-xxx

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2. A critical component in any component of a life support device, or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.