

AIChip — AI-embedded PMC (NOT PMIC): Always-On Governance Controller for Edge Fleets

AI-embedded PMC is an always-on governance controller that makes “IoT with AI” economically scalable by converting power/control-plane telemetry into **evidence-grade observability** and **deterministic, guardrailed recovery**—without heavy edge computers at every node.

Problem / Why now

Edge AI stalls in vertical IoT because reliability is forced onto heavy edge compute: BOM & power rise, maintenance complexity grows, and triage becomes non-deterministic. Fleet operators need auditable stability under drift, brownouts, and maintenance events—at MCU-class cost.

Solution (what it is / not)

AI-embedded PMC is a **system-level reliability/control plane (NOT a PMIC, not a GPU)**. It sits on the always-on substrate and closes the loop:

Telemetry → Evidence → Drift/Causality scoring → Guardrailed actions → Policy revision

Core capabilities

- **Deterministic rails (hard envelope):** monotonic sequencing, safe switchover, bounded actions that never violate hard limits (Guardrails).
- **Evidence Spine (replayable truth):** structured event/snapshot episodes for auditability, reproduction, and ML training.
- **Two-ended interfaces:** input side focuses on **PMBus source redundancy switching**; output side governs power plus sideband/control via **SMBus / I2C / I3C / JTAG / SerDes**.
- **Programmable + revisionable:** deterministic logic + embedded algorithms/ML policies are updateable without breaking the safety envelope.
- **Replace or collaborate:** replaces heavy edge compute for reliability functions in cost-sensitive nodes, or acts as the always-on control plane while edge compute focuses on AI workloads.

Roadmap / product line

A-series (A1–A4): standardized silicon, customizable profiles/policy packs across verticals. Execution path: **FPGA prototyping → partner validation → ASIC hardening** for cost-effective, MCU-class silicon at scale.

Progress (verifiable)

Spec-locked Phase 0 with measurable deliverables: deterministic simulation → evidence artifacts → acceptance gate (ATP) → ML baseline with traceable manifests. Public repo:

<https://github.com/dennistyleo/AI-PMC-Governance-Controller>

Business model

Hardware (AI-embedded PMC) + recurring governance licensing (policy packs, evidence tooling) + paid pilots/integration.

Ask

Routing to the right path: AppWorks vs Wistron partner track; plus funding (pre-seed/seed) to complete Phase 0, run 2–4 pilots, and harden toward ASIC.

Links

Company: <https://aichco.com> | Product dev/progress: <https://github.com/dennistyleo/AI-PMC-Governance-Controller>