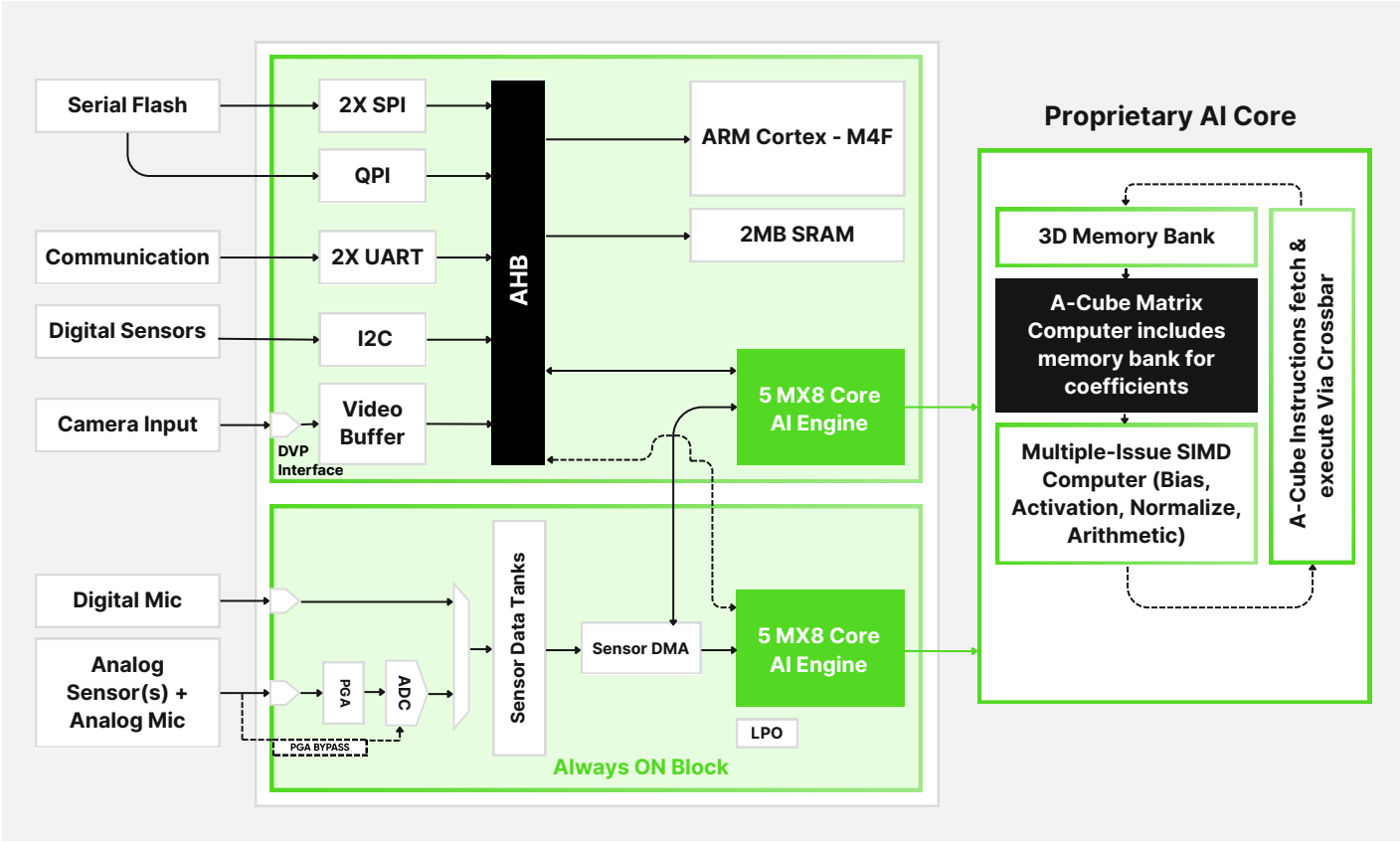
GPX10Pro: AI compute on coin-cell battery



GPX10Pro is an AI application processor designed for energy aware intelligence at the edge, capable of running on as little as a coin cell battery. Unlike traditional chips merely optimized for efficiency, GPX10Pro is designed from the ground up on Ambient's AI-native A- Cube architecture, harnessing analog MACs embedded in SRAM to deliver breakthrough on-device AI compute at unmatched low power consumption. Its programmable AI cores support custom deep learning models (CNNs, RNNs, LSTMs, etc.), while the integrated control processor, memory, and sensor interfaces make it a standalone AI computer. From activity recognition and voice control on tiny wearables to FaceID on battery-powered doorbells to predictive maintenance, **GPX10Pro unlocks a world of battery-powered AI possibilities at the edge.**

Functional Block Diagram



True On-Device AI

Unlock advanced AI capabilities on the tiniest of devices without cloud dependence for instant, private AI

Energy Aware End-to-End

Energy aware design from sensing to AI inference to action enables always-on AI on as little as a coin cell

Programmable & Versatile

Fully programmable AI cores support diverse models and applications for complete flexibility and control

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Key Features

- **AI Engine:** High performance, ultra-low-power 10 AI cores called MX8 using Ambient's breakthrough A- Cube architecture
- **Flexible AI Compute:** Each AI core supports multiple operand resolutions. Each core can be enabled and halted. Completely software defined to enable variety of AI algorithms (CNN, RNN, LSTM, etc.)
- **Energy Aware AI**: Power consumption as low as 80 Micro Watt for AlwaysOn AI applications → Can run AI continuously for multiple years on as little as coin cell battery
- **Power Domains:** 1) Full Chip Power Domain and 2) AON (Always ON) Power Domain. Extended/ Non Always On functions can be powered down completely.
- **Sensor Fusion:** Special Sensor Fusions DMA architecture to AI engine with facility to mix up to 10 Analog sensors data-stream
- **Power Supply:** Core – 0.9V to 1.2V
  Analog & I/O - 1.8V to 3.3V
- **Control Plane:** ARM M4F 32-bit processor with floating point unit
- **Peripherals:** QPI /I2S Master /2xSPI/ I2C Master/ I2C Slave /2xUART /16xGPIO/4xFlexible interrupts / DVP interface for image sensors/ ADC interface (SAR ADC and Del Sig)
- **Memory:** 140KB L0 cache / 2MB unified L1 Cache
- **Analog:** 16-bit SAR ADC supported up to 8 simultaneous Analog Sensors/Low battery detection/On-Chip programmable amplifier/20-bit Audio ADC
- **Clocking:** On-Chip LPO, PLL. Ultra-Wide operating range
- **Security:** Asymmetric encryption AES-128S
- **Infrastructure:** Timers / Real time clock/ WDT (Watchdog Timer)
- **Package:** BGA: 128-pin 8mmx8mm / CSP package: 3.2mm x 3.2mm (CSP on-demand)
- **Operating Temperature:** -40 to +85C

Markets & Applications

Wearables

Fall Detection
Activity Recognition

Industrials

Predictive Maintenance
Fire & Smoke detection

Home & Security

FaceID & Smart Doorbell
Presence Detection

Voice & Sound

Voice Commands
Glass Break Detection

and many more applications...

* Scan QR Code to contact us

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