

FREEMAN CONSTRUCTS

AI Accelerator (Pure-Integer Architecture)

December 2025

Aaron Freeman, Founder

aaron@freemanconstructs.com

(316) 305-5412

Breakthrough Summary

- **8.3x geometric PPA** uplift over BF16 in apples-to-apples Nangate45 ASIC flow
- **2.25x PPA uplift on AMD Versal V80 silicon** (post-P&R, clean 150 MHz timing closure)
- Less than 0.0001 percent perplexity drift on real Pythia-1B and Pythia-12B training traces

These results define a clear path toward a new AI accelerator built around a pure-integer compute pipeline that scales beyond the limits of floating-point designs.

Business Impact

(30 percent AI load, \$0.075 per kWh)

AI compute demand is driving the largest infrastructure expansion in cloud history. Hyperscaler AI capex is now 300 to 400 billion dollars annually, and accelerator hardware is projected to reach 300 to 400 billion dollars by 2030. Datacenter AI power demand is expected to grow 165 percent from 2024 to 2030, with more than 60 large AI campuses planned above 500 megawatts.

Customer Value: 1 GW AI Datacenter Example

- Current annual AI energy cost: about **197 million dollars**
- With the Tenfold accelerator architecture: about **20 to 25 million dollars**
- Annual savings per site: approximately **175 million dollars**

Industry-wide savings potential exceeds **10 billion dollars per year**.

Business Model

Freeman Constructs is developing a full-stack AI accelerator.

- Accelerator hardware priced in the five to thirty thousand dollar range
- Rack-scale systems for datacenter deployment
- Cloud-hosted training and inference capacity for enterprise and research customers
- Target margins of 55 to 70 percent at scale

Positioned as a clear alternative to GPU-based clusters.

Seed Raise

Target: 15 to 25 million dollars to accelerate ASIC execution

- Advanced-node feasibility at 3 to 5 nm, including physical design, scaling, timing, and power analysis
- Architecture and RTL development, stack integration, and preparation for a targeted test chip
- Early engagement with hyperscalers and national labs, supported by the initial silicon team

Full technical documentation is available under NDA.