InspireSemi™

Disruptive Next Generation Accelerated Computing Platform

InspireSemi provides revolutionary high-performance, energy-efficient accelerated computing solutions for High-Performance Computing (HPC), AI, graph analytics, and other compute-intensive workloads. The Thunderbird "supercomputer-cluster-on-a-chip" is designed to address multiple underserved and diversified industries.

OVERVIEW

New standards of speed, efficiency, and versatility

Existing HPC, AI, Graph Analytics & blockchain compute solutions are no longer "good enough". They are expensive, hard to program, power hungry, and only work for limited applications. InspireSemi is poised to set new standards of speed, versatility, and efficiency for computationally-intensive applications. Led led by an accomplished team with a proven track record, we are leveraging an efficient operating model with world class outsourced manufacturing partners (e.g.- TSMC, ASE). Leading industrial companies, national labs, and computer OEMs value our technology, innovative North America design team, and scalable supply chain.

Technology

Our versatile Thunderbird "supercomputer cluster-on-a-chip" accelerated computing architecture contains thousands of modern, powerful, and efficient 64-bit CPU cores, all connected via our high-speed mesh network fabric. These and other architectural advantages result in real world application benefits, and it is compatible with an established, thriving open software ecosystem to support a broader range of applications than GPUs.

MARKETS

Scientists and engineers can open new frontiers with blistering speed, hyper scalable interconnectivity, energy efficiency, & standard CPU software programming model that eliminates vendor lock-in.

AI Developers can unleash their AI applications from data and performance bottlenecks and undue expense to accelerate innovation, insights, and market impact.

Graph analytics applications now can scale and support extremely large models by leveraging the thousands of high-performance interconnected CPU cores and cache memory on each chip.

Alex Gray, Founder, CTO & President

Alex is the founder of InspireSemi and inventor of its processor architecture. He is a versatile technical leader skilled in many areas of electronic design and other disciplines. He previously founded CryptoCore Technologies and several small businesses. He has over a decade of design experience with companies including SunPower & SolarBridge Technologies.

Ron Van Dell, Chief Executive Officer

Ron has over 40 years of experience and an exceptional track record of success and proven leadership skills in early-stage, turn-around and established businesses. He is former CEO of Primarion, SolarBridge, and several other semiconductor and hardware startups. He has played key roles in industry-leading category development and technology substitutions across power, communications, computing and renewable energy segments. He has deep experience in organization design and operational leadership, business strategy, fundraising/M&A, and corporate governance.

John B. Kennedy, Chief Financial Officer

John has over 30 years of experience in finance and administration, with a strong focus in venture-backed startup and growth stage companies. Most recently he served as CFO of TriLumina, a leading illumination solution technology company. Prior to TriLumina John was CFO of Sprocket Media, Inc. and SolarBridge Technologies, Inc. and VP of Finance and Administration for Primarion, Inc.

Doug Norton, Chief Marketing Officer

Doug has over 35 years of experience in business development, marketing & sales of HPC, AI and enterprise IT solutions in both public and startup companies. He brings a customer-focused approach to market development, go to market strategy, creating OEM, channel, & technology partnerships, and building worldwide sales teams. He began his career at IBM, going on to various leadership positions at Cadence Design Systems, CoWare, Newisys, Virtana, & Nimbix. He is also President of the Society of HPC Professionals.

Thomas Fedorko, Chief Operating Officer

Thomas is an entrepreneurial executive bringing more than 35 years of hands-on technical and business leadership in semiconductor Operations. He began his career as a product engineer at Motorola Semiconductor who delivered the first microprocessor for the Apple Macintosh and went on to lead Operations teams for several successful startup companies including Eta Compute, Uhnder, Bluetechnix & Luminary Micro.

Find out more: www.inspiresemi.com

InspireSemi™
SOLUTIONS

Setting new standards of compute power, energy efficiency and flexibility for a range of applications

InspireSemi's powerful Thunderbird "supercomputer cluster-on-a-chip" accelerated computing architecture is based on an array of thousands of modern, efficient, and powerful 64-bit CPU cores, tightly integrated with high-speed memory and networking. It is an ideal platform for high-performance computing (HPC), AI/machine learning, graph analytics, and ultra-efficient blockchain applications.

Leveraging the modern, efficient, open-standard RISC-V CPU ISA (instruction set architecture) provides access to an established, thriving ecosystem of software, libraries, and development tools. Our developer-friendly all-CPU programming model eliminates vendor lock-in and greatly simplifies software development, QA, & maintenance, since there is no need to support multiple and often proprietary software stacks (e.g.- x86, CUDA, ROCM, SYCL, etc.). This also enables the combination of AI & HPC on one platform for deeper insights and bigger advancements.

Our highly optimized, high speed mesh network fabric provides high bandwidth and low latency communications between cores. Tightly integrated with the high-performance CPU cores and distributed memory, it removes crucial bottlenecks from applications that depend on close cooperation between many independent threads. Arrays of up to 256 Thunderbird chips connect seamlessly via high-speed serial transceivers.

Compared to a modern datacenter GPU, Thunderbird provides all the raw computational power with far broader application to real world codes. Our advanced network fabric enables far better cooperation between cores. And our roots in extremely power- and cost-sensitive blockchain computing enable us to provide this performance with considerably lower energy consumption and cost than leading GPU's.

Raw performance: 24 TFLOPS (FP64)
Energy efficiency: 50 GFLOPS/Watt (FP64)
Utilization: network reduces latency 20x
Deterministic + Predictable Performance
Value: exceptional Performance/$

- Thousands of powerful RISC-V CPU cores & established, thriving software ecosystem to support broader range of applications than GPUs

- Developer-friendly programming model greatly simplifies software & algorithm development, eliminates vendor lock-in, and provides maximum versatility for HPC, AI, and other applications

- Superscalar, vector, and tensor operations, including mixed precision floating point

- Dedicated acceleration for several blockchain and cryptography algorithms

- Ample high-speed SRAM memory tightly integrated with CPU processor cores

- Extreme-bandwidth, low-latency, on-chip mesh network fabric for both inter- and intra-chip connectivity, up to 256 Thunderbird chips

- Deterministic + predictable performance addresses applications GPUs cannot, including real-time and real-safe computing

- Support for large amounts of onboard LP-DDR memory, NVMe storage, PCIe, and Gb ethernet

Innovate with InspireSemi
Contact us to learn more

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