



High Performance Memory  
Technology for for Leading-  
Edge Applications

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# Safe Harbor

The statements contained in this presentation that are not purely historical are forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended, including statements regarding GSI Technology's expectations, beliefs, intentions, or strategies regarding the future. All forward-looking statements included in this presentation are based upon information available to GSI Technology as of the date hereof, and GSI Technology assumes no obligation to update any such forward-looking statements. Forward-looking statements involve a variety of risks and uncertainties, which could cause actual results to differ materially from those projected. These risks include those associated with normal quarterly and fiscal year-end closing processes. Examples of other risks that could affect our expectations regarding future revenues and gross margins include those associated with fluctuations in GSI Technology's operating results; GSI Technology's historical dependence on sales to a limited number of customers and fluctuations in the mix of customers and products in any period; the rapidly evolving markets for GSI Technology's products and uncertainty regarding the development of these markets; the need to develop and introduce new products to offset the historical decline in the average unit selling price of GSI Technology's products; the challenges of rapid growth followed by periods of contraction; intensive competition; and delays or unanticipated costs that may be encountered in the development of new products based on our in-place associative processing technology and the establishment of new markets and customer relationships for the sale of such products. Further information regarding these and other risks relating to GSI Technology's business is contained in the Company's filings with the Securities and Exchange Commission, including those factors discussed under the caption "Risk Factors" in such filings.

# GSI Technology

## Overview

**LEVERAGING OVER 25 YEARS OF MEMORY CHIP DESIGN AND DEVELOPMENT TO BRING REVOLUTIONARY CHANGE TO COMPUTING**

- **Founded 1995** in Silicon Valley; IPO in 2007
- **Fabless** memory chip company
- Leading provider of **“Very Fast” SRAM<sup>1</sup>**
- **Largest portfolio** of high-performance memory
- Launching **Gemini** Associative Processing Unit (APU)
- **35% insider** ownership
- **\$188 million** market cap<sup>2</sup>

**\$43M**

FY 2020 Annual Revenue

**172**

Employees Worldwide

**114**

Engineers

**92**

Patents Grated

**\$64.7M**

Cash and cash equivalents

**\$124M**

Enterprise value

1. Static Random Access Memory (SRAM) operates at speeds less than 10 nanoseconds, as defined by Gartner Dataquest
2. Based on closing share price as of January 11, 2021 and shares outstanding of 23,641,426 as of October 31, 2020.

# Capital Efficient

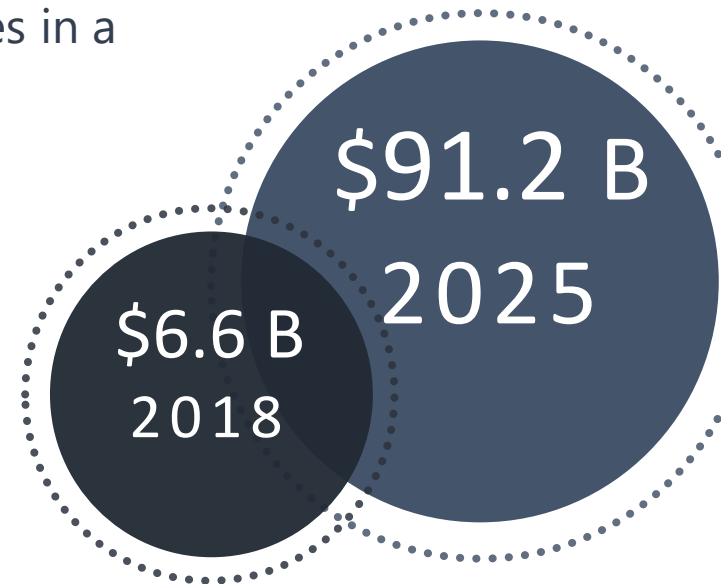
## Core Business Funds Growth

- Cap-ex light semiconductor business model – manufacture with TSMC using master die production process
- Strong cash generation historically
- 100% of R&D budget focused on new AI solution
  - \$5+ million quarterly R&D spend to develop Gemini APU and the software and algorithm libraries
- Core business and strong balance sheet provide funding for Gemini APU development and marketing

# Launching New Products

- **Radiation Hardened** and **Radiation Tolerant** chips for aerospace and defense leverage our core SRAM platform
- **Gemini**, GSI's patented **associative processing unit (APU)**, ties AI innovation with core memory capabilities in a unique, memory-centric processor

The global **AI chip market** is projected to grow at a **CAGR of 45%**



Source: Allied Market Research, Global Artificial Intelligence Chip Market by Chip type, Application, Technology, and Industry vertical; Global Forecast, 2019–2025.

# Leveraging Expertise Into New Product Categories

Higher ASP, Higher Margin Products with Larger TAMs

## Legacy SRAM Memory

- **Industry leading**, largest portfolio of **high-performance memory** products
- **SigmaQuad™** and **SigmaDDR™** core business growth drivers
- **SigmaQuad™ SRAMs** recognized for industry-leading density and speeds
- **3rd and 4th Generation SRAM** fastest off-the-shelf SRAM on market

## Radiation Hardened SRAM

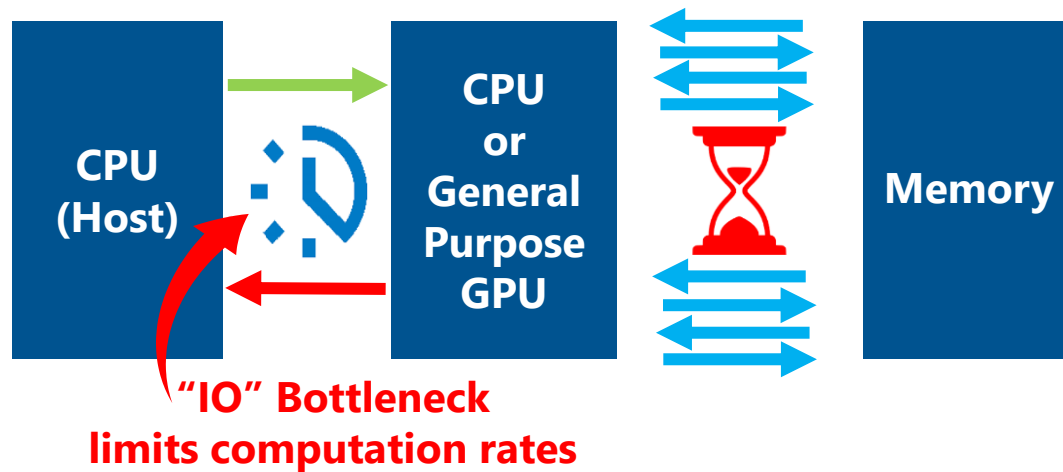
- **85%+ gross margin**, ~\$30K ASP
- **Satellites, missiles, high altitude flights**

## Gemini Associative Processing Unit (APU)

- **Memory-centric** parallel processing
- **Speed and accuracy** for **extremely large data sets**
- **Scalable** and **customizable**

# AI Processing Limitations

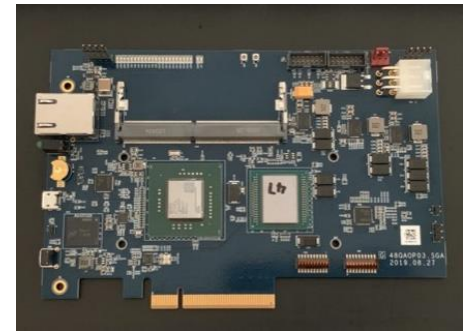
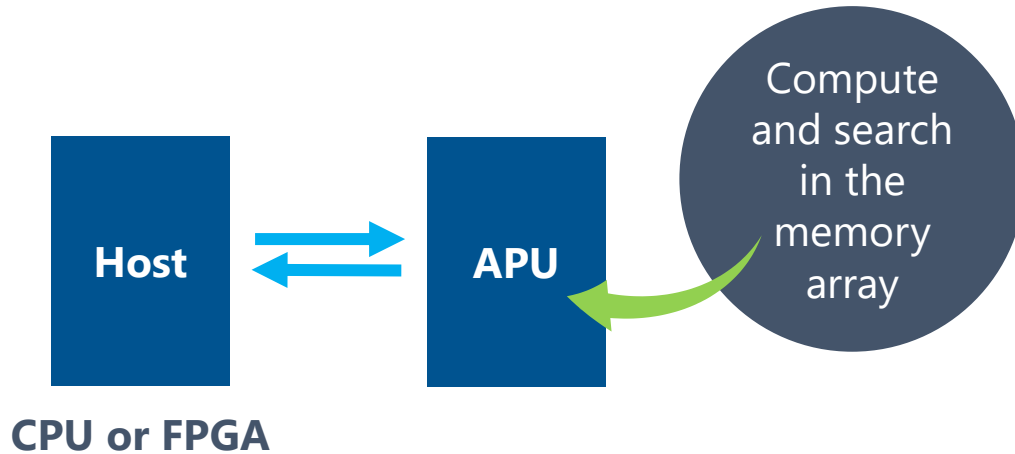
Von Neumann Architecture Creates a Massive IO Bottleneck



- CPU/GPU limited by "von Neumann" bottleneck with large datasets
- Slower computation rates due to throughput limitations
- Significant power consumption
- Not a scalable system

# APU Removes Bottleneck

## Revolutionary Computing Model

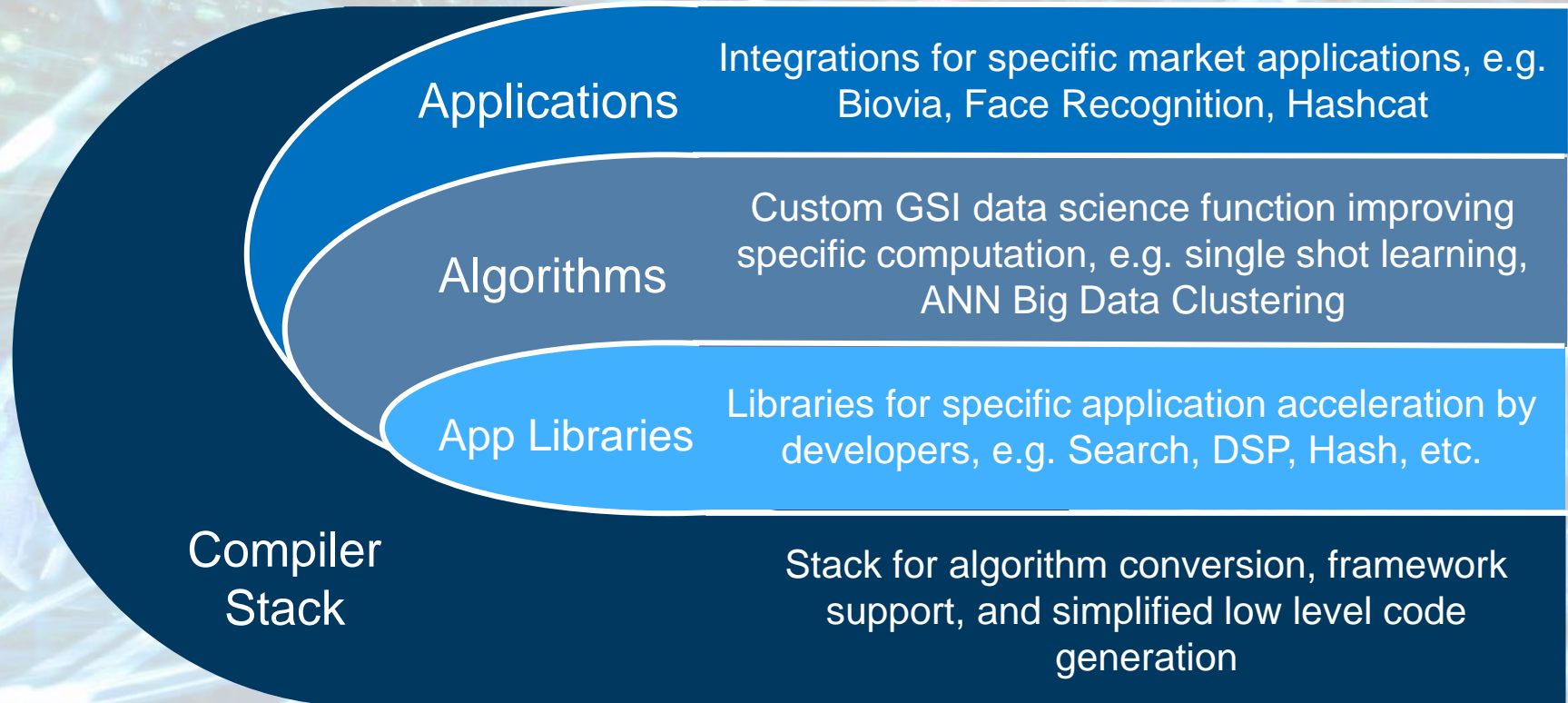


APU on Leda-G Board

- In-memory processing **reduces computation time** from minutes to seconds, milliseconds, or nanoseconds
- Significantly **reduced power consumption** and total cost of ownership
- Massive parallel data processing with **2 million-bit processors** per chip versus 1,000's in a GPU
- **Scalable** - unique feature to Gemini



# APU Software and Algorithms



# Software Capability

## Adaptable for Complex, Novel Solutions

**GSI's software development team is developing sophisticated software to address diverse applications**


**Recent MAFAT Challenge\* win showcases GSI's software capabilities**

- GSI landed first place in the MAFAT Challenge to distinguish humans from animals in radar signal segments
- The competitions for accuracy fielded 1,000 competitors with over 4,300 entries (GSI was one of the last entrants in contest)
- GSI's software expertise, combined with the high-performance APU hardware solution, is a competitive advantage versus AI solutions typically siloed in either software or hardware

\* See Company's press release dated January 6, 2021 "GSI Technology Takes Home First Prize in MAFAT Radar Challenge" for further details.

# Target Applications

## Gemini-I Excels in Similarity Search

Search Markets for Gemini-I	Nvidia GPU Google TPU Intel HABANA Graphcore IPU	CPU	FPGA	Gemini-I
Facial Recognition Drug Discovery & Toxicity Genomics Signal Classification Object Detection Cryptography Visual & Video Search Elasticsearch		x	x	 <b>Gemini outperforms all current search solutions</b>

# Benchmark Performance

## Highlights Unique Capabilities

- In April 2020, GSI published\* Gemini-I performance results for query-by-query similarity search on datasets up to one billion items
- This marks the first published record of ~1-millisecond latency with over 92% accuracy on a billion-item dataset
- Benchmarks document Gemini's lower latency (speed) versus CPU/FPGA architectures

Gemini-I provides superior total cost of ownership results with the **smallest system footprint** and **lowest power usage**

*\*Published in the Company's press release issued April 6, 2020*

# Facial Recognition

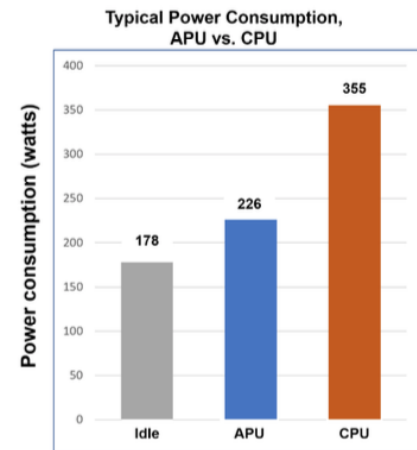
Meet performance expectations with low TCO (Total Cost of Ownership)

## Challenge

- Effective facial recognition systems need highly accurate results with near real-time responses of positive identification and to handle multiple queries simultaneously
- Current solutions require large numbers of costly GPUs and CPUs to deliver performance at scale

## Gemini-I Solution

- Gemini-I delivers accurate results, reducing search times from many minutes to fractions of a second, with significantly lower power consumption



Gemini-I power consumption is 70% lower than CPU systems

# Cheminformatic

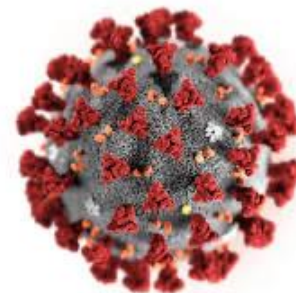
## Faster, Lower-Cost Drug Development

### Challenge

- Drug discovery requires searching extensive molecular databases for molecules with similar properties to a known drug
- CPU-based systems require several minutes to complete only one molecule similarity search

### Gemini-I Solution

- Gemini-I's hyper-scale computational search is many orders of magnitude faster and can perform multiple searches simultaneously, with more frequent exact matches



In the fight against COVID-19, the Weizmann Institute is using Gemini-I and a database of 40 million molecules in their search for an antiviral medication

# Gemini APU in Space

## Radiation Tolerant Onboard Processing

### Challenge

Sensor-intensive satellites processing massive datasets

- Insufficient satellite bandwidth for exchanging large amounts of data with ground stations
- Safe satellite constellation navigation requires rapid response

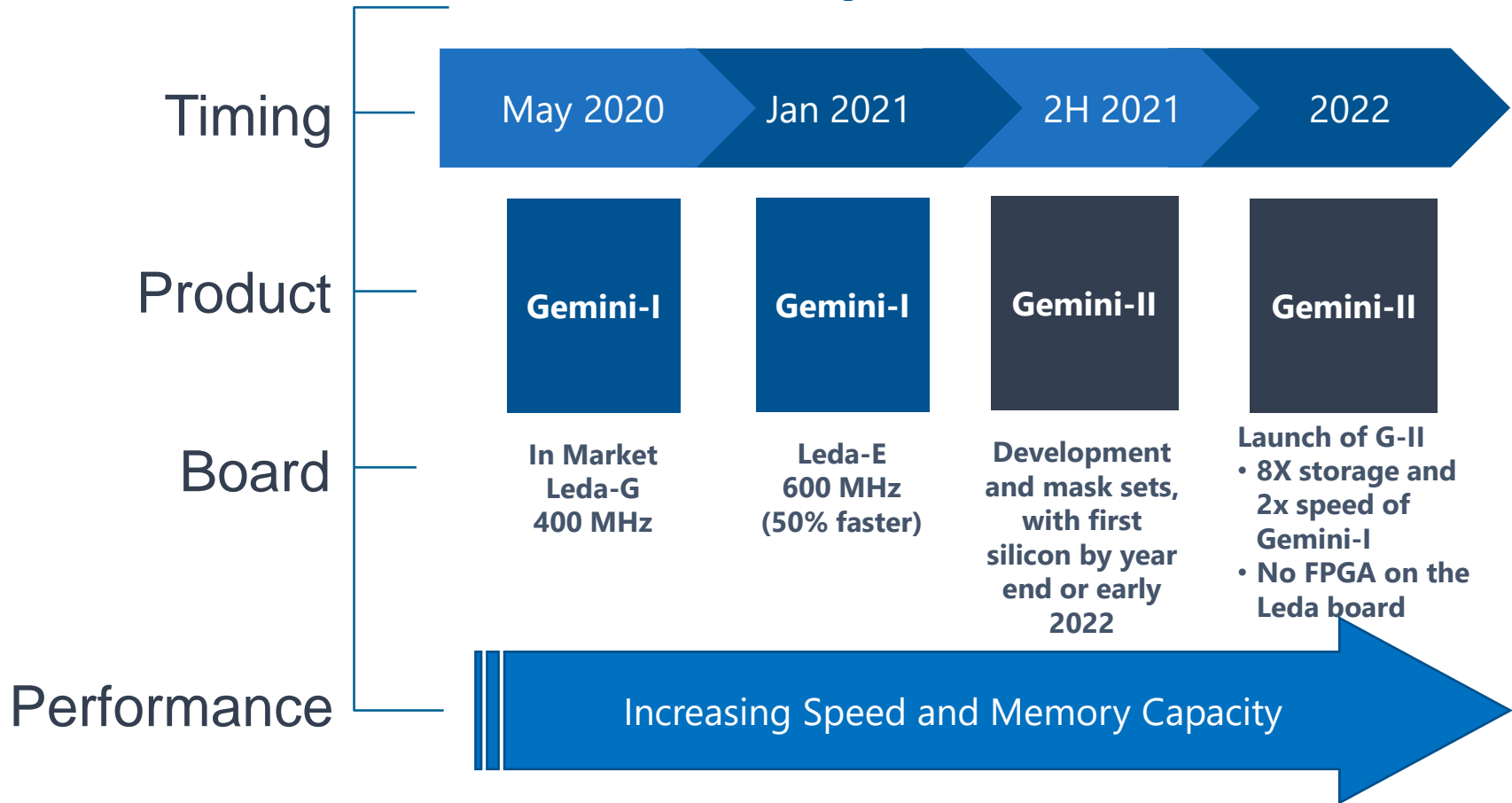
### Rad Tolerant Gemini-I Solution

- Onboard AI, multiple data source integration, automatic target recognition, and weather analysis
- Crash avoidance and improved communications



With thousands of satellites in space with little traffic control, Gemini can avoid costly collisions with near real time responses

# APU Roadmap





# Why Invest Now?

- **Timing** - increasing awareness that memory-centric processors can solve the limitations of current AI processors
- **Trends** – Gemini’s advantages as more AI computing and search happens at the edge:
  - Smaller footprint, lower power usage, and lower total cost of ownership
- **Validated** – published benchmarks validate APU’s processing-in-memory delivers significant performance gains versus existing solutions
- **Go-to-market process** – building industry awareness with customers testing boards
- **GSI Technology is the leading public company play for in-memory computing**
- **Attractive risk/reward profile:**
  - Limited downside given almost half the company’s market cap is in cash with a low cash burn rate
  - Significant upside given the AI opportunity over three-to-five-year horizon



Thank you!



# GSI Technology

High Performance Components  
for Leading-Edge Technology

[GSITechnology.com](http://GSITechnology.com) / IR Contact: [GSIT@HaydenIR.com](mailto:GSIT@HaydenIR.com)

# Key Takeaways

- **Gemini-I targeting multiple applications in similarity search**
  - Facial Recognition
  - Drug Discovery and Toxicity
  - Elasticsearch
  - Signal Classification and Object Detection
  - Cryptography
- **Executing on building sales pipeline for Gemini-I**
  - Anticipate sales ramp in CY 2021
- **Trading at 2.6X EV/TTM Sales and 3X market cap/total cash**
  - Gemini-I potential not reflected in current valuation

# Appendix

# AI Processor Overview

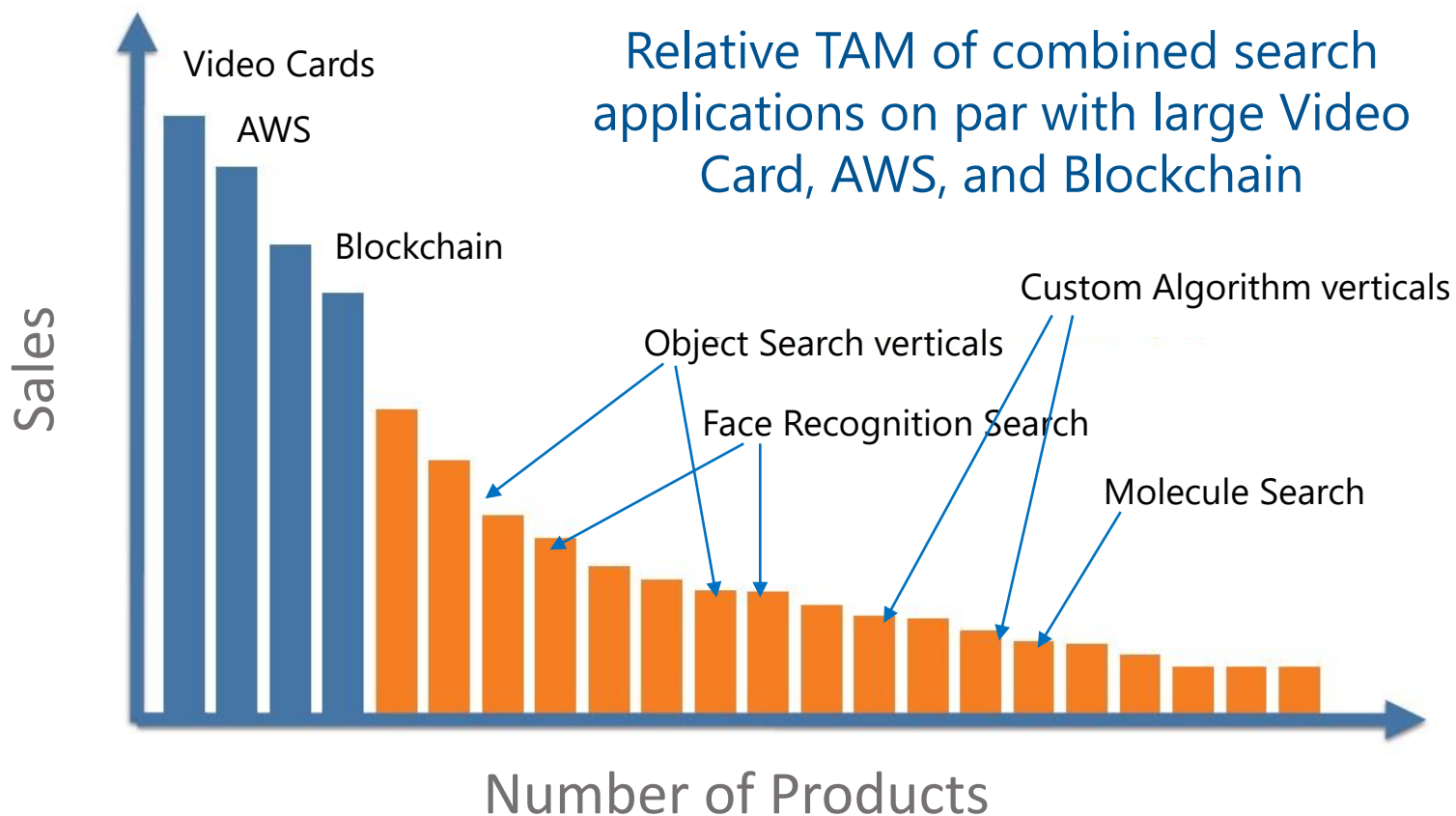
## Gemini-I Excels in Similarity Search

- Visual search requires high processing speeds and accuracy
- Gemini-I speed and accuracy is ideal for visual search
- Gemini-II targeting inference and training (2022)

Application	Nvidia GPU Google TPU Intel NERVANA NPP Graphcore IPU	ASIC	FPGA	Gemini-I
Similarity search	x	x	x	✓+
Training	✓	x	⊖	x
Inference	⊖	✓	✓	✓

# Diverse Markets

## Long Tail Market for AI Search



NOTE: vertical height is for illustration and not indicative of scaled volume.

# Income Statement

CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS  
(in thousands, except per share data)  
(Unaudited)

	<u>Three Months Ended</u>			<u>Six Months Ended</u>	
	<u>Sept. 30,</u> <u>2020</u>	<u>June 30,</u> <u>2020</u>	<u>Sept. 30,</u> <u>2019</u>	<u>Sept. 30,</u> <u>2020</u>	<u>Sept. 30,</u> <u>2019</u>
Net revenues	\$ 6,659	\$6,621	\$ 11,740	\$ 13,280	\$ 24,759
Cost of goods sold	<u>3,547</u>	<u>3,571</u>	<u>5,172</u>	<u>7,118</u>	<u>9,948</u>
Gross profit	<u>3,112</u>	<u>3,050</u>	<u>6,568</u>	<u>6,162</u>	<u>14,811</u>
Operating expenses:					
Research & development	5,659	5,825	5,833	11,484	11,428
Selling, general and administrative	<u>2,606</u>	<u>2,920</u>	<u>2,658</u>	<u>5,526</u>	<u>5,535</u>
Total operating expenses	<u>8,265</u>	<u>8,745</u>	<u>8,491</u>	<u>17,010</u>	<u>16,963</u>
Operating loss	(5,153)	(5,695)	(1,923)	(10,848)	(2,152)
Interest and other income, net	<u>(16)</u>	<u>106</u>	<u>210</u>	<u>90</u>	<u>357</u>
Loss before income taxes	(5,169)	(5,589)	(1,713)	(10,758)	(1,795)
Provision for income taxes	<u>62</u>	<u>487</u>	<u>55</u>	<u>549</u>	<u>98</u>
Net loss	<u>\$ (5,231)</u>	<u>(\$6,076)</u>	<u>\$ (1,768)</u>	<u>\$ (11,307)</u>	<u>\$ (1,893)</u>
Net loss per share, basic	\$ (0.22)	(\$0.26)	\$ (0.08)	\$ (0.48)	\$ (0.08)
Net loss per share, diluted	\$ (0.22)	(\$0.26)	\$ (0.08)	\$ (0.48)	\$ (0.08)
Weighted-average shares used in computing per share amounts:					
Basic	23,617	23,440	22,975	23,529	22,791
Diluted	23,617	23,440	22,975	23,529	22,791

# Summary Balance Sheet

CONDENSED CONSOLIDATED BALANCE SHEETS  
(in thousands)  
(Unaudited)

	<u>Sept. 30,</u> <u>2020</u>	<u>March 31,</u> <u>2020</u>
Cash and cash equivalents	\$44,022	\$51,506
Short-term investments	12,067	15,061
Accounts receivable	4,282	6,330
Inventory	4,273	4,282
Other current assets	1,655	1,934
Net property and equipment	7,632	8,119
Long-term investments	8,655	4,117
Other assets	11,454	11,212
Total assets	<u>\$94,040</u>	<u>\$102,561</u>
Current liabilities	\$7,073	\$8,260
Long-term liabilities	4,744	4,660
Stockholders' equity	82,223	89,641
Total liabilities and stockholders' equity	<u>\$94,040</u>	<u>\$102,561</u>



# Experienced Management Team

Name	Title	Years of Experience	Years with GSI	Prior Companies
Lee-Lean Shu	President and CEO,	42	25	Sony, AMD
Doug Schirle	Chief Financial Officer	42	21	Cypress, Pericom
Didier Lasserre	VP Sales and IR	32	23	Cypress, Solectron
Avidan Akerib	VP of Associative Computing	40	5	MikaMonu, NeoMagic
Patrick Chaung	SR VP of Memory Design	44	11	Sony, AMD
Robert Yau	VP of Engineering	43	25	Sony, Mosel Vitelic
Bor-Tay Wu	VP of Taiwan Operations	40	24	Atalent, AMD