



High Performance Memory
Technology for for Leading-
Edge Applications

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SAFE HARBOR

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GSI TECHNOLOGY

OVERVIEW

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

- Founded in 1995 in Silicon Valley; IPO in 2007
- Fabless memory chip company
- Leading provider of “**Very Fast**” SRAM¹
- **Largest portfolio** of high-performance memory, including Radiation Hardened and Tolerant SRAM
- Launching **Gemini** Associative Processing Unit (APU)
- **31% insider** ownership
- Market cap of \$97.2 million²

\$33.4M

FY 2022 Annual Revenue

180

Employees Worldwide

126

Engineers

120

Patents Granted

\$47.3M

Cash and cash equivalents³

\$49.9M

Enterprise value

1. Static Random Access Memory (SRAM) operates at speeds less than 10 nanoseconds, as defined by Gartner Dataquest

2. Based on the closing share price of \$3.97 on June 2, 2022, and common stock outstanding as of May 24, 2022, of 24,486,239.

3. Includes cash and cash equivalents, short-term investments, and long-term investments as of March 31, 2021.

CAPITAL EFFICIENT

CORE BUSINESS FUNDS OUR GROWTH

- Cap-ex light semiconductor business model
- Manufacture SRAM and APU with TSMC using a master die production process
- Core business and strong balance sheet fund product and business development
- Self-funding 100% of the R&D for the APU hardware and software
 - \$6 million quarterly R&D spend to develop Gemini APU hardware and software

LEVERAGING EXPERTISE INTO NEW PRODUCT CATEGORIES

Legacy SRAM Mem

- 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
- Ongoing POCs and demos

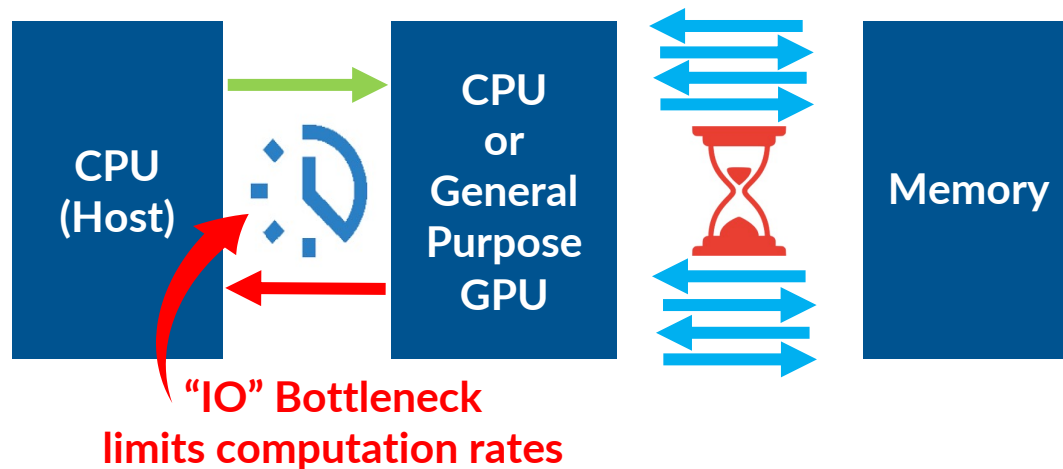
Gemini Associative Processing Unit (APU)

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

Higher ASP, Higher Margin Products with Larger TAMs

AI PROCESSING LIMITATIONS

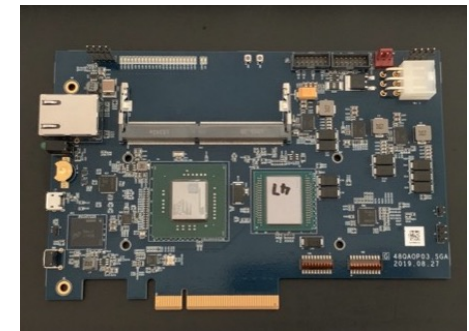
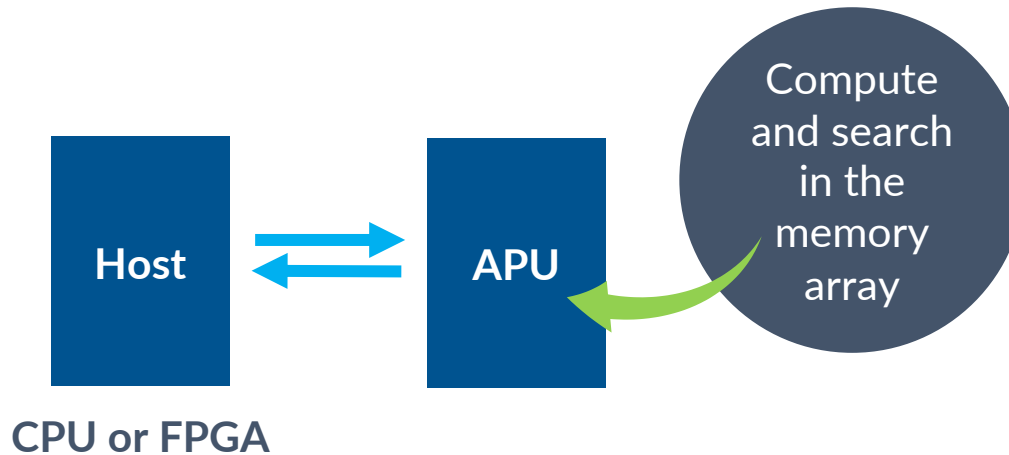
VON NEUMANN ARCHITECTURE CREATES A MASSIVE IO BOTTLENECK



- 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

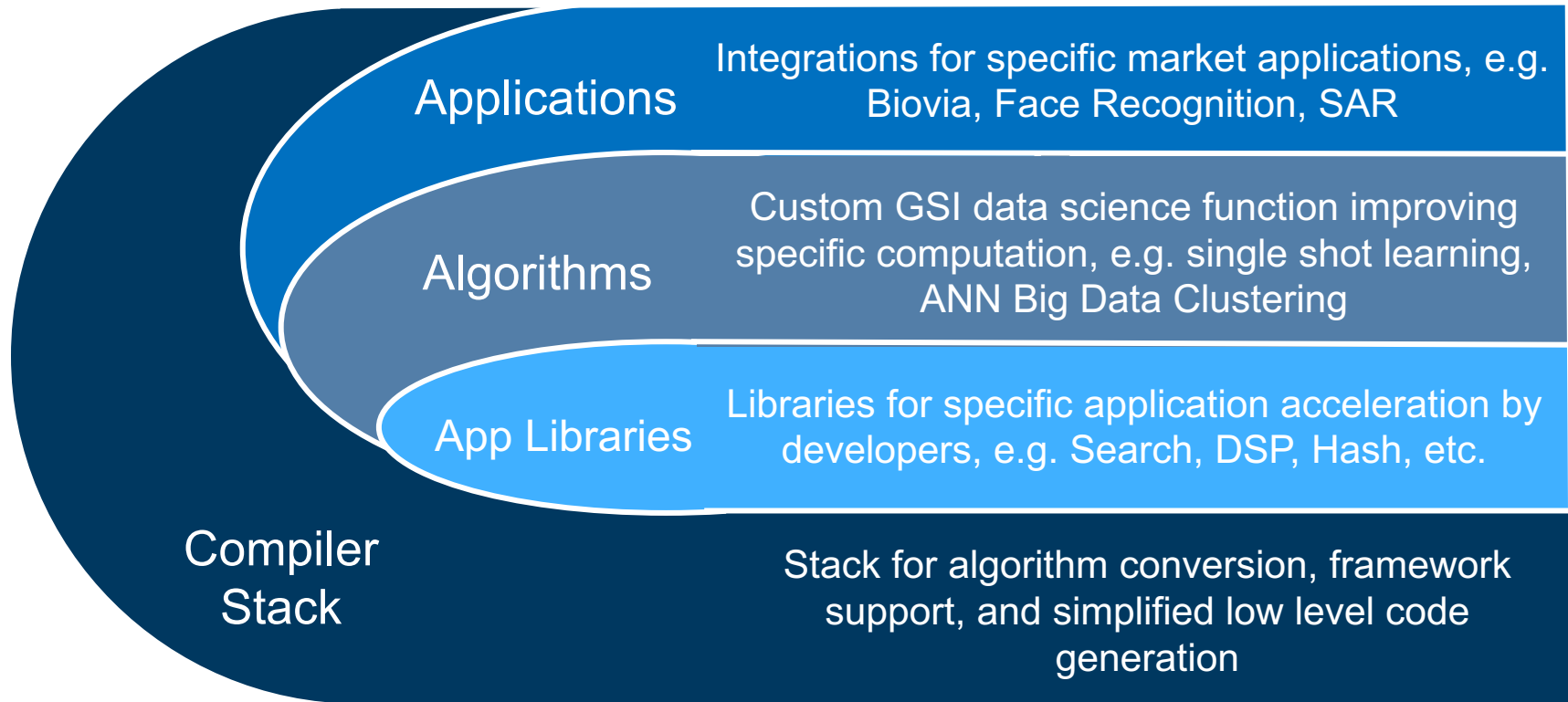
A REVOLUTIONARY COMPUTING MODEL



APU on Leda-G Board


- In-memory processing **reduces computation time** from minutes to seconds, milliseconds, or microseconds
- 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



TARGET APPLICATIONS

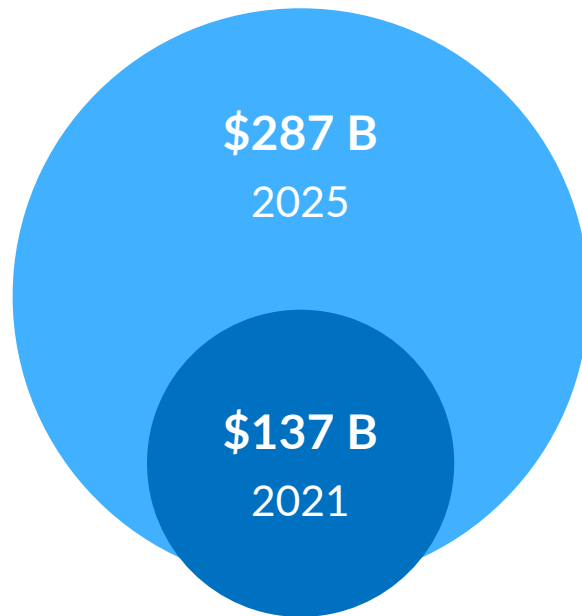
GEMINI-I EXCELS IN SIMILARITY SEARCH

Search Markets for Gemini-I	Nvidia GPU Google TPU Intel HABANA Graphcore IPU	CPU	FPGA	Gemini-I
Facial Recognition Drug Discovery & Toxicity SAR, ATR Natural Language Processing Object Detection Cryptography Visual & Video Search Elastic, AWS Open Search	x	x	x	
Gemini outperforms all current search solutions				

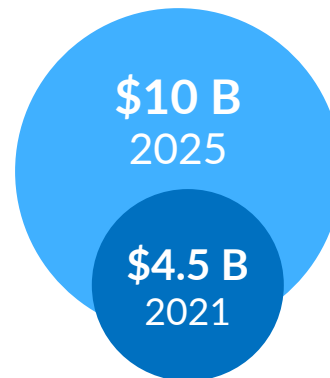
APU TAM/SAM

OPPORTUNITIES ACROSS MULTIPLE SEARCH MARKETS

TAM



SAM



Targeted SAM Applications

- Computer Vision
- SAR
- Natural Language Processing
- Cybersecurity
- NoSQL Search Engine (SaaS)
- Elasticsearch; OpenSearch (SaaS)

Targeting High ASP, High Margin Markets

Source materials referenced for addressable market analysis and sizes cited on appendix slide 22.

SAR IMAGE PROCESSING

SAR IMAGE PROCESSING ACCELERATION SYSTEM POC WITH ELTA USING GSI'S APU TECHNOLOGY¹

Comparisons for a 5 Km by 5 Km SAR Image in 1 second at 0.5 m Resolution

Power Used	84 M KW	19.9 M KW	2.2 M KW
5-Year Total Cost ¹	\$13.4 M	\$3.2 M	\$0.35 M

GSI's APU
uses on
average
93%
less power

Intel Xeon Gold Based
~ 23 cabinets



NVIDIA V-100 based
~ 5 cabinets



GSI APU based
1/3 cabinet and portable



Lower power cost, lower system cost, lower cost overall²

1. GSI's APU Chosen for IAI/Elta Near Real-Time SAR Image Processing Acceleration - press release, January 12, 2022.
2. "Total Cost of Ownership" reflects hardware systems cost plus power cost calculated at average \$0.13 per kilowatt hour for US-based systems.

HARDWARE-ACCELERATED SIMILARITY SEARCH

PARTNERING WITH AWS OPENSEARCH AND MUVES VECTOR SEARCH SOFTWARE STACK

AWS OpenSearch Community

Expands OpenSearch capability to K-NN and Approximate Nearest Neighbor (ANN)

Accelerate searches, adds dense-vector support, and multimodal queries to +billion scale databases

Lowers cost per query solution with higher performance

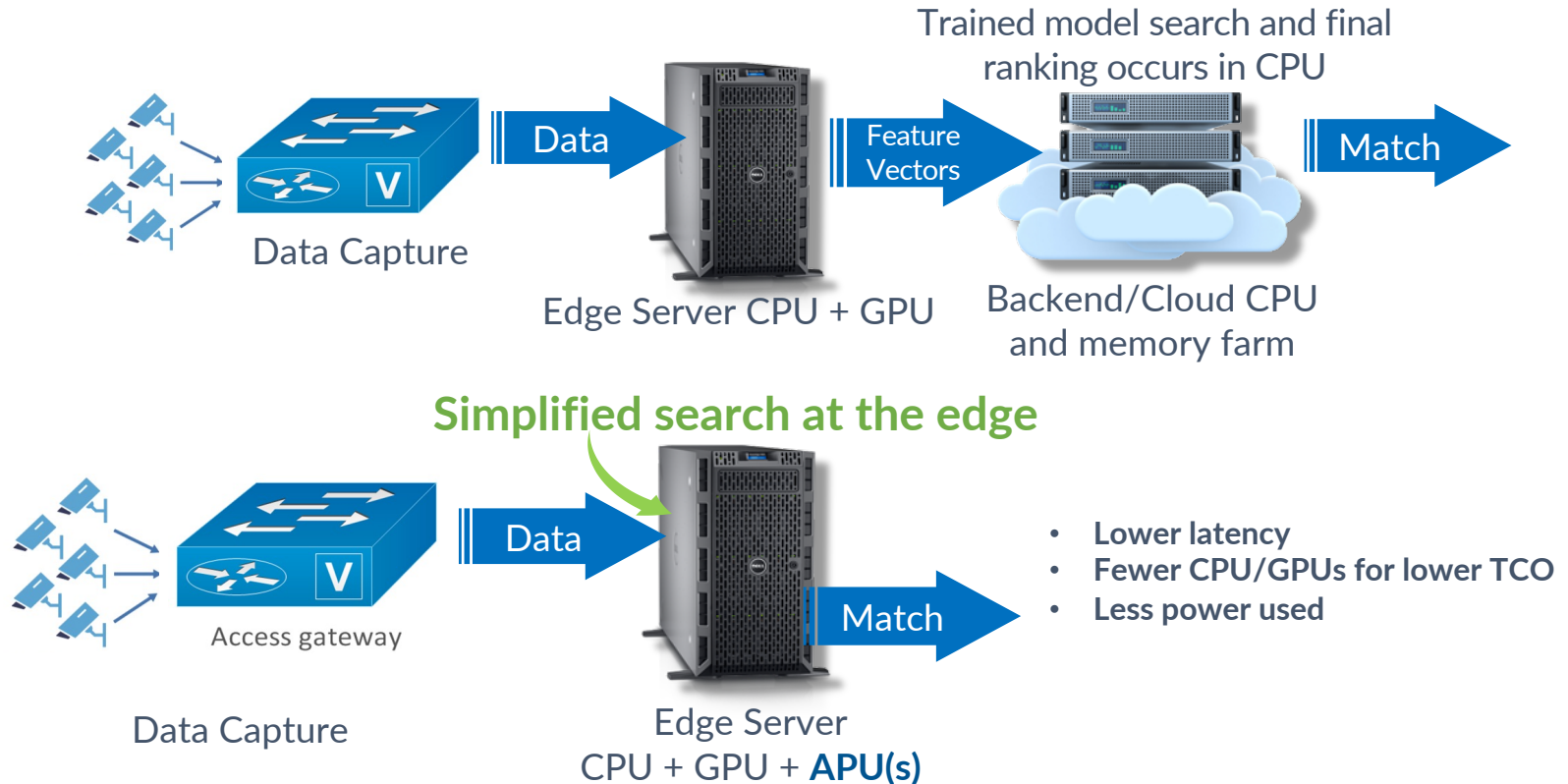
MUVES

Muves' state-of-the-art search engine software is based on the latest natural language processing research allowing rapid implementation and deployment of multilingual and multimodal (text and Image) vector search applications

Developed multilingual and multimodal vector search engine powered by GSI's APU hardware acceleration and Muves search stack

REAL-TIME EDGE RESULTS

TRADITIONAL FACIAL RECOGNITION VS APU LOCAL PROCESSING



Applications include Borders, Smart City, Anti-terrorism

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

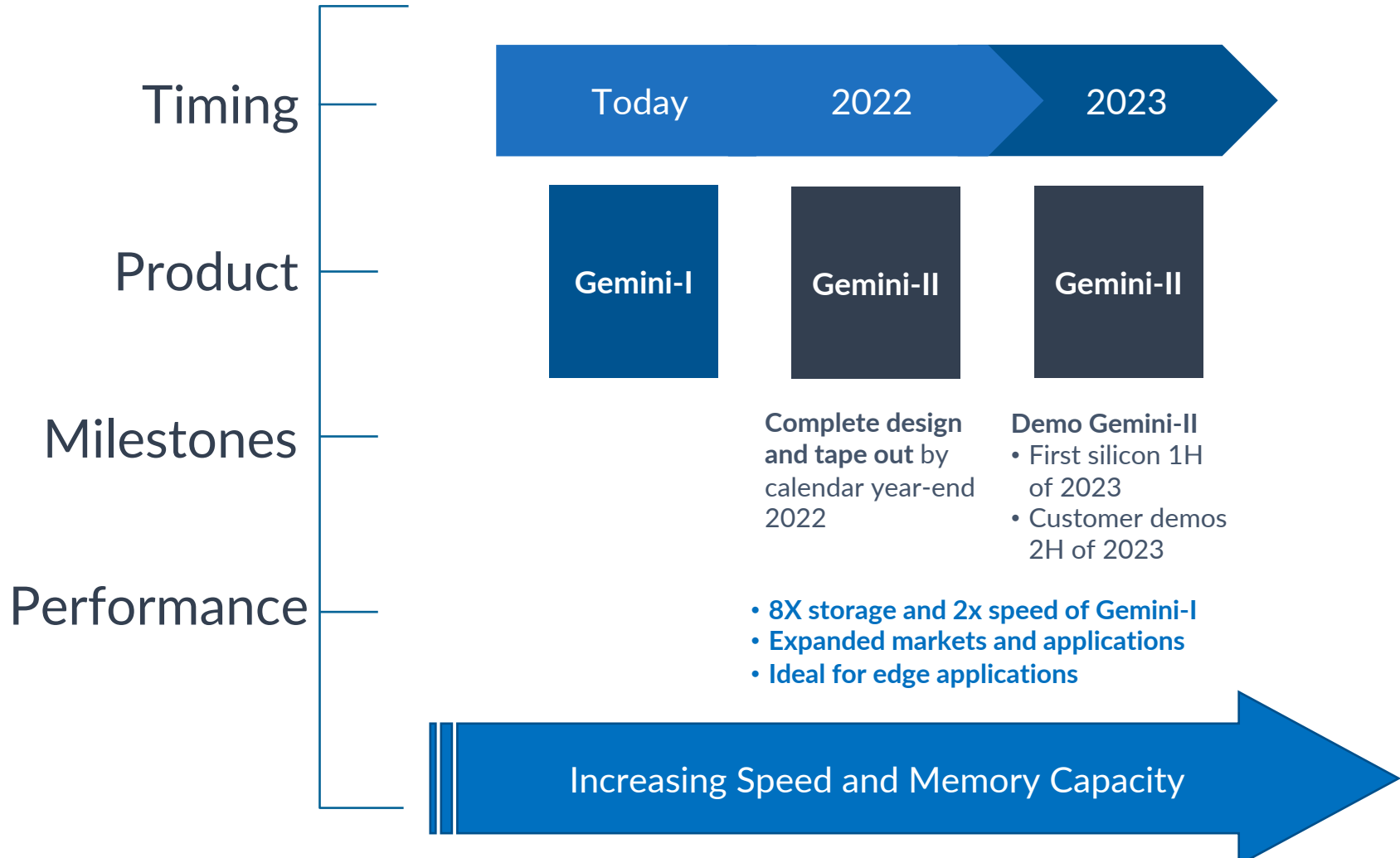
Rad Tolerant Gemini-I Solution

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



With near real-time response
Gemini can avoid costly
collisions for the thousands
of satellites in space.

APU HARDWARE ROADMAP



WHY INVEST NOW?

- **Gemini APU expected to deliver significant value**
 - Compute-in-memory is the ultimate solution to the “system bottleneck” problem
 - Smaller footprint, lower power usage and lower total cost of ownership for data sets exceeding 1 billion items
 - Selected as a partner in AWS Open Search project, SAR POC with Elta
 - POCs activity with potential to move to production
 - Catalyst to increase customer engagement with second version of compiler stack in Summer 2022
- **Attractive risk/reward profile:**
 - 54% of the company’s market cap is in cash,
 - Enterprise value is below current cash balance
 - 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 / IR Contact: GSIT@HaydenIR.com

APPENDIX

AI PROCESSOR OVERVIEW

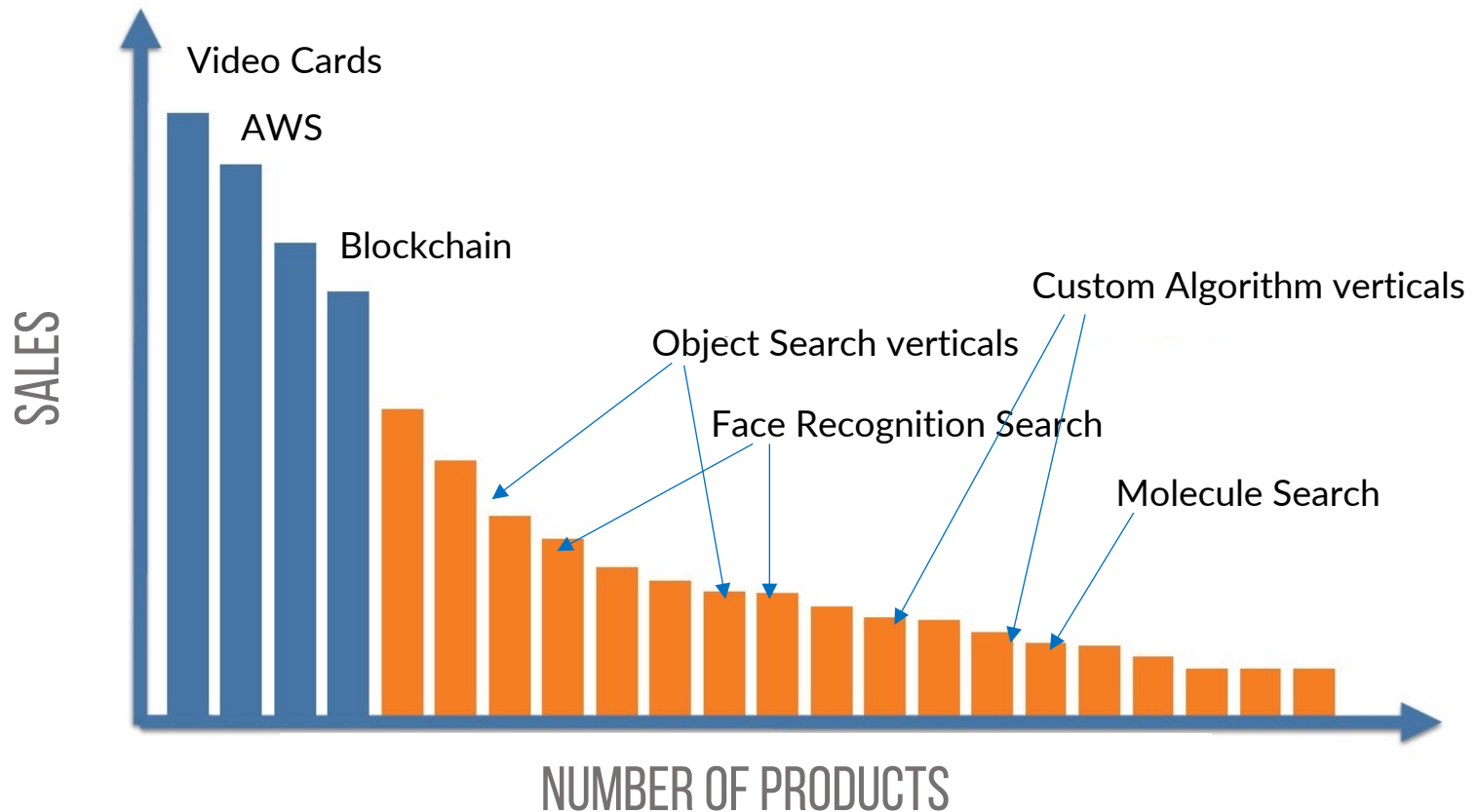
GEMINI-I EXCELS IN SIMILARITY SEARCH

- 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 \ Processor	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.

APU TAM/SAM

REFERENCED SOURCES FOR APU TAM

Computer Visions/ Face Recognition:

1. <https://www.grandviewresearch.com/press-release/global-image-recognition-market>
2. <https://www.fortunebusinessinsights.com/industry-reports/image-recognition-market-101855>
3. <https://www.alliedmarketresearch.com/image-recognition-market>
4. \$US86B in 2025
5. <https://www.emergenresearch.com/industry-report/image-recognition-market>
6. <https://www.marketsandmarkets.com/Market-Reports/image-recognition-market-222404611.html>
7. <https://www.globenewswire.com/news-release/2020/11/10/2123406/0/en/Image-Recognition-Market-to-Hit-86-32-Billion-by-2027-Rapid-Advancements-in-Face-Detection-Technologies-to-Drive-Market-Growth-Fortune-Business-Insights.html>
8. <https://www.prnewswire.com/in/news-releases/image-recognition-market-size-to-reach-usd-58920-million-by-2026-at-cagr-15-6-valuatesreports879065277>

SAR:

- <https://www.grandviewresearch.com/industry-analysis/synthetic-aperture-radar-market>
1. <https://www.marketwatch.com/press-release/synthetic-aperture-radar-sar-market-size-2021-industry-demand-share-trend-industry-news-growth-top-key-players-business-statistics-and-forecast-to-2027-2021-06-22>
 2. <https://ksusentinel.com/2021/07/03/sar-satellite-services-market-size-revenue-analysis-conae-jaxa-esa/>

NoSQL:

1. <https://dataintelo.com/report/nosql-market/>
2. <https://www.alliedmarketresearch.com/NoSQL-market>
3. <https://www.imarcgroup.com/nosql-market>
4. <https://www.verifiedmarketresearch.com/product/nosql-database-market/>

Cybersecurity:

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2. <https://www.vynzresearch.com/ict-media/artificial-intelligence-in-cyber-security-market>
3. <https://industrygrowthinsights.com/report/artificial-intelligencein-cybersecurity-market/>
4. <https://www.marketdataforecast.com/market-reports/ai-in-cyber-security-market>
5. <https://www.marketsandmarkets.com/Market-Reports/artificial-intelligence-security-market-220634996.html>

INCOME STATEMENT

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

	<u>Three Months Ended</u>			<u>Twelve Months Ended</u>	
	<u>March 31,</u> <u>2022</u>	<u>Dec. 31,</u> <u>2021</u>	<u>March 31,</u> <u>2021</u>	<u>March 31,</u> <u>2022</u>	<u>March 31,</u> <u>2021</u>
Net revenues	\$ 8,731	\$ 8,065	\$ 7,686	\$ 33,384	\$ 27,729
Cost of goods sold	3,615	3,603	3,828	14,847	14,512
Gross profit	5,116	4,462	3,858	18,537	13,217
Operating expenses:					
Research & development	6,510	6,152	6,124	24,672	23,344
Selling, general and administrative	2,887	2,842	2,999	11,556	11,137
Total operating expenses	9,397	8,994	9,123	36,228	34,481
Operating loss	(4,281)	(4,532)	(5,265)	(17,691)	(21,264)
Interest and other income (expense), net	(47)	15	(21)	(60)	94
Loss before income taxes	(4,328)	(4,517)	(5,286)	(17,751)	(21,170)
Provision (benefit) for income taxes	21	64	(304)	(45)	335
Net loss	<u>\$ (4,349)</u>	<u>\$ (4,581)</u>	<u>\$ (4,982)</u>	<u>\$ (17,706)</u>	<u>\$ (21,505)</u>
Net loss per share, basic	\$ (0.18)	\$ (0.19)	\$ (0.21)	\$ (0.73)	\$ (0.91)
Net loss per share, diluted	\$ (0.18)	\$ (0.19)	\$ (0.21)	\$ (0.73)	\$ (0.91)
Weighted-average shares used in computing per share amounts:					
Basic	24,484	24,406	23,912	24,303	23,671
Diluted	24,484	24,406	23,912	24,303	23,671

SUMMARY BALANCE SHEET

CONDENSED CONSOLIDATED BALANCE SHEETS (in thousands) (Audited)

	March 31, 2022	March 31, 2021
Cash and cash equivalents	\$36,971	\$44,234
Short-term investments	6,992	9,717
Accounts receivable	4,518	3,665
Inventory	4,655	4,343
Other current assets	1,555	1,487
Net property and equipment	7,359	7,328
Long-term investments	3,345	5,792
Other assets	11,027	11,046
Total assets	<u>\$76,422</u>	<u>\$87,612</u>
Current liabilities	\$8,861	\$7,462
Long-term liabilities	4,448	4,558
Stockholders' equity	63,113	75,592
Total liabilities and stockholders' equity	<u>\$76,422</u>	<u>\$87,612</u>

EXPERIENCED MANAGEMENT TEAM

Name	Title	Years of Experience	Years with GSI	Prior Companies
Lee-Lean Shu	Chairman and CEO	44	27	Sony, AMD
Doug Schirle	Chief Financial Officer	44	23	Cypress, Pericom
Didier Lasserre	VP Sales and IR	34	24	Cypress, Solectron
Avidan Akerib	VP of Associative Computing	42	6	MikaMonu, NeoMagic
Patrick Chaung	SR VP of Memory Design	46	13	Sony, AMD
Robert Yau	VP of Engineering	45	27	Sony, Mosel Vitelic
Bor-Tay Wu	VP of Taiwan Operations	42	26	Atalent, AMD



Thank you!



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