

# 2025: Preparing for Rapid Growth

March 2025



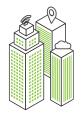






# Weebit Overview: Leading Vendor of ReRAM IP

### **Advanced Non-Volatile Memory (NVM) Now Entering Production**



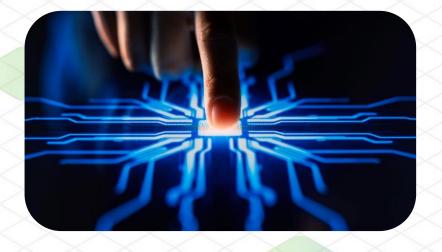
#### Founded: 2015

Located: Israel & France 50 personnel<sup>(1)</sup> (90% engineers/scientists; 13 PhDs)



#### Multiple commercial deals

Including tier-1 IDM onsemi; ongoing discussions/evals with >20 foundries/IDMs/product companies





#### **Business model**

IP licensing to semiconductor companies & fabs



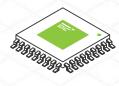
#### **Fast-growing markets**

Edge AI, automotive, microcontrollers, power management/analog ICs...



#### **R&D** partner

CEA-Leti, a leading microelectronics research institute



#### Proven, protected technology

Fully qualified per JEDEC and AEC-Q100; available for chip designers; 80+ patents/applications



**S&P/ASX 300** 



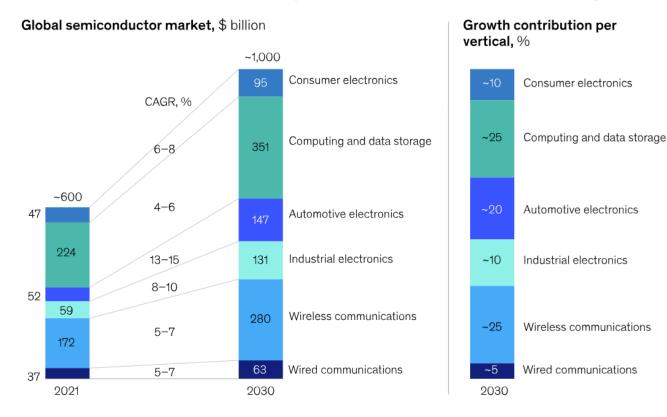
<sup>\*</sup> Source: https://www.mordorintelligence.com/industry-reports/non-volatile-memory-market (1) Includes employees and full-time contractors



# **Semiconductors Represent an Incredible Global Opportunity**

### Semiconductors are everywhere, driving world markets

The semiconductor market is expected to reach \$1 trillion in value by 2030.\*



Most of the world's top companies design or make semiconductors<sup>2</sup>

- Microsoft
- 2. Apple
- 3. Nvidia
- 4. Alphabet
- 5. Amazon
- 6. Meta
- 7. Berkshire Hathaway
- 8. Eli Lilly
- 9. TSMC
- 10. Broadcom

McKinsey & Company



<sup>(1)</sup> https://www.mckinsey.com/~/media/mckinsey/industries/semiconductors/our%20insights/mckinsey%20on%20semiconductors%202024/mck\_semiconductors\_2024\_webpdf.pdf

<sup>(2)</sup> By market cap as of December 30, 2024. <a href="https://en.wikipedia.org/wiki/List\_of\_public\_corporations\_by\_market\_capitalization">https://en.wikipedia.org/wiki/List\_of\_public\_corporations\_by\_market\_capitalization</a>
\* \$USD

# **Investment in Semiconductors Ramping up Globally**

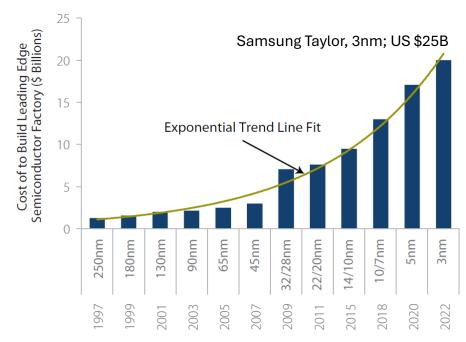
### A growing opportunity for IP solutions

A record number of new fabs are coming online over the next couple of years<sup>1</sup>



SEMI World Fab Forecast: 109 new fabs worldwide expected to come online 2022-2026

# Fab costs are skyrocketing; even the largest product companies license IP and use foundries<sup>3</sup>



Source: Jefferies LLC

US \$800B semiconductor fab investments 2021-2023<sup>2</sup>



- 1. <a href="https://www.semi.org/en/blogs/semi-news/global-semiconductor-industry-driving-%241-trillion-and-beyond-together">https://www.semi.org/en/blogs/semi-news/global-semiconductor-industry-driving-%241-trillion-and-beyond-together</a>
- 2. https://www.semi.org/sites/semi.org/files/2023-11/14%20Pierre%20Cambou%20Yole%20NEW%20NEW.pdf
- 3. https://www.artisanpartners.com/content/dam/documents/insights/vxus/Insights-The-Semiconductors-Decade-vXUS.pdf?trk=test

# A Brief History of Non-Volatile Memory (NVM)

~2010

Flash Scaling Issues
Known

Alternatives Emerge

~2020

**Choices Narrow** 

2024

Superior Tech Wins

Today

ReRAM is Chosen Flash Replacement



Microelectronic Engineering
Volume 86, Issue 3, March 2009, Pages 283-286



Future challenges of flash memory technologies



Month: June 2012

The End of Flash Scaling



**FeRAM** 

**MRAM** 

**CBRAM** 

**ReRAM** 

**PCM** 

3Dxpoint

**Optane** 

Too expensive
Difficult to implement
Exotic materials

**MRAM** 

Mass **Production** 

**ReRAM** 

Multiple Companies Developing **MRAM** 

Magnetic Issues

**ReRAM** 

In Production; Vendors Shake Out

TSMC redirects its
roadmap from MRAM
to ReRAM



The only independent ReRAM supplier

# **Weebit ReRAM Advantages**



3-4x

# Lower added wafer cost vs. embedded flash

- ✓ 2-mask adder (vs. ~10)
- ✓ Shorter CT, fewer steps



10x

# Better endurance vs. embedded flash

✓ Demo 100K-1M write cycles



# ~100x

# More energy efficient vs. embedded flash

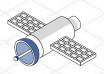
Low voltage, low current write operations



### <28nm

# Scales to processes far below limits of flash

✓ Proven @ 28nm and 22nm ✓ Scalable **below** 



~350x

# Better radiation tolerance vs. flash<sup>1</sup>

Also tolerant to EMI



150°C

### Reliable for Automotive designs

✓ Grade-0 conditions and profiles



0

# Interference w/ analog & power devices

Best NVM for PMIC& mixed-signal



# Faster program time than embedded flash

- ✓ Bit/byte addressable
  - ✓ No sector erase



# The Weebit Journey

#### **STARTUP**

#### 2015

Weebit founded

#### 2016

 Engaged CEA-Leti as R&D partner

#### 2017

- Coby Hanoch Named CEO
- French subsidiary
- 40nm working ReRAM cells



#### R&D

#### 2018

- Leti agreement to accelerate commercialisation
- 1Mb array at 40nm
- 1st packaged chips

#### 2019

- ReRAM results at 28nm
- Neuromorphic demo

#### 2020

 ReRAM process stabilized

#### **COMMERCIALISATION**

#### 2021

- 1<sup>st</sup> foundry SkyWater
- 1<sup>st</sup> embedded ReRAM module

#### 2022

- Full qual with Leti
- Scaling to 22nm

#### 2023

- 2<sup>nd</sup> foundry DB HiTek
- 1st ReRAM IP available
- Qual for auto temps

#### 2024

- \$1 million in revenues
- Demo on 22nm FD-SOI



2025

Scaling up



towards mass production

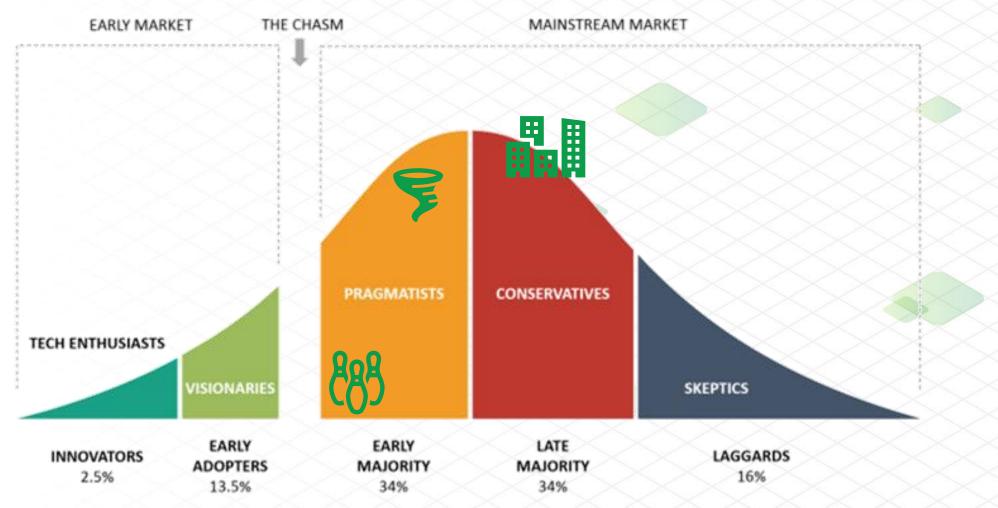








# **Heading for the Tornado**





Base image courtesy of https://www.business-to-you.com/crossing-the-chasm-technology-adoption\_life-cycle/

# Strong Board with World-renowned Semiconductor Industry Experience





Dr. Yoav Nissan-Cohen NON-EXEC. DIRECTOR





Atiq Raza NON-EXEC. DIRECTOR





Naomi Simson NON-EXEC. DIRECTOR





Ashley Krongold
NON-EXEC.
DIRECTOR





#### Anne Templeman-Jones NON-EXEC. DIRECTOR





Coby Hanoch







# **Strong and Experienced Management**







Alla Felder CFO





Ishai Naveh CTO





Ilan Sever VP R&D





Lilach Zinger
VP CUSTOMER
SUCCESS





Issachar Ohana CRO





Eran Briman
VP MARKETING &





CEVA DSP.... core photonics SAMSUNG





**Recent Achievements** 



# **Major Recent Corporate Advancements**

Think like an ASX100 company









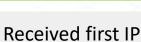






#### **GOVERNANCE**

Naomi Simson appointed to Board



**FINANCE** 

licensing revenue

#### **RESEARCH**

MST access initiates coverage

### **GOVERNANCE**

Yoav Nissan-Cohen → Non-Exec Director

#### **RESEARCH**

Unified Capital
Partners initiates
coverage

#### **FINANCE**

Closed A\$50M placement with 6.5% premium

#### GOVERNANCE

New Board member Anne Templeman-Jones









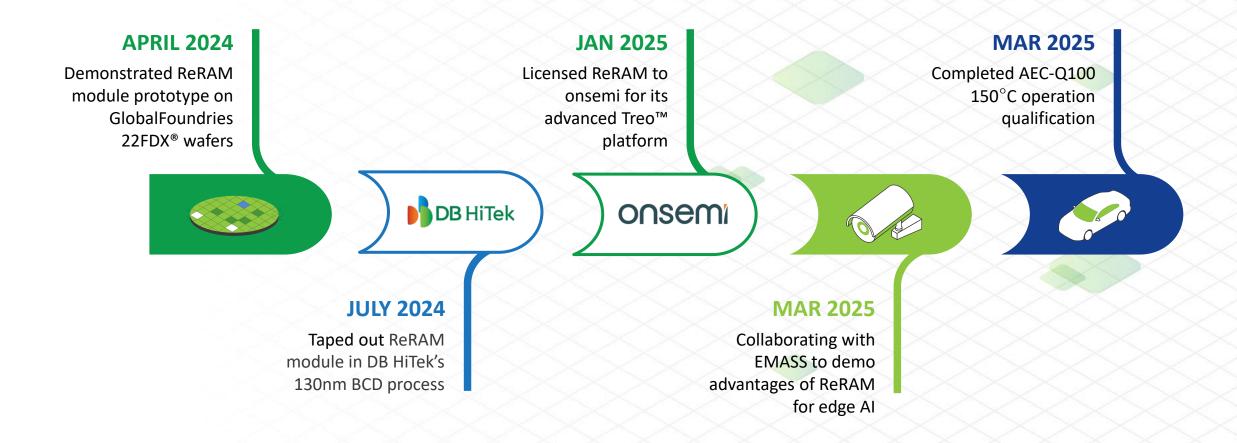








# **Continued Technical Progress in Last 12 Months**





### onsemi Licenses Weebit ReRAM IP

#### Another proof point that ReRAM is the leading NVM choice for foundries/IDMs

# onsemi

onsemi provides intelligent power and sensing solutions with a focus on automotive and industrial

500

Fortune 500® company S&P 500® index

100

Nasdaq 100<sup>®</sup> company

#2

Global position in silicon power solutions

\$7.1B

2024 revenue (USD)

onsemi was spun out of Motorola as ON Semiconductor in 1999

# First Weebit ReRAM license to a top-tier Integrated Device Manufacturer (IDM)

- ♦ Currently being integrated into onsemi's Treo™ platform
  - Targets most advanced automotive and industrial applications
  - Combines Power Management, Compute and Sensing on a single die
  - Manufacturing 65nm BCD in a 300mm US production fab
- Weebit ReRAM will enable high-density NVM
  - Brings more intelligence to a range of onsemi's power products
  - Provides power-efficiency and cost-effectiveness
- The companies started working together on technology transfer to an onsemi US production facility

IDMs manufacture their own products, shortening time-to-production and potentially accelerating time-to-royalties

onsemi data from the onsemi Quarterly Investor Presentation Fourth Quarter 2024



## **Weebit ReRAM in Automotive**

#### Increasing number of semiconductors per car

 ~1,000 - 3,000 per car; an electric Audi or Volkswagen contains up to 8,000\*

#### Automotive in need of new NVM technologies

- Growing needs for emerging NVM: code storage, trimming, data logging...
- Can effectively scale to advanced process nodes,
   <28nm</li>

# Parameters of Weebit ReRAM align with automaker specifications

 High-temp reliability, EMI immunity, high endurance, fast switching speed, longevity, secured

#### Completed AEC-Q100 150°C Operation Qualification

# Key to getting designed into automotive MCUs & other components

- ❖ Demonstrated stability at 150°C operation for up to 100K endurance cycles\*\*
- Including cycling and post-cycling high-temp data retention

#### **Beyond Automotive**

- Many industrial and IoT applications require high-temp and extended endurance
- ❖ With AEC-Q100 we can service over 99% of applications

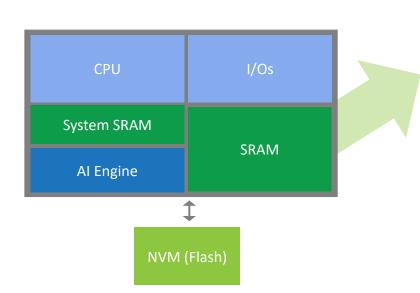
Completed qual in SkyWater \$130 using module with 1T1R cell architecture



<sup>\*</sup> https://www.audi-mediacenter.com/en/press-releases/semiconductors-are-becoming-the-neurons-of-our-cars-16053

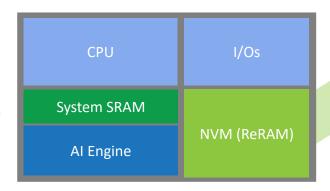
<sup>\*\*</sup> Flash equivalent

### **ReRAM Driving Innovation for Edge AI and Future Neuromorphic Compute**



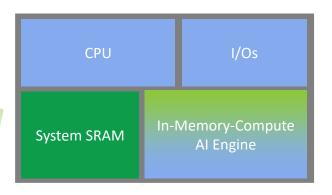
Today's **2-chip solution**External NVM holds weights
Weights copied into SRAM

- Wasteful in terms of size & cost
- Prohibitive power



ReRAM-based Near-Memory Compute: superior to DRAM and SRAM-based alternatives

- Better cost, performance and power; always-on availability
- Eliminates external NVM



# Future ReRAM-based Neuromorphic Computing

Systems: mimic brain's behavior for fast real-time processing on massive amounts of data

- More efficient synaptic weight storage for NN calculations:
   4X greater capacity than SRAM
- Three orders of magnitude (x1000)
   better energy efficiency



# New Demo Shows Advantages of ReRAM for Edge Al

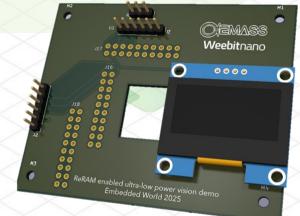
# Embedded AI Systems (EMASS) demonstrated ReRAM advantages via ultra-low-power system for gesture recognition

- Potential applications: wearables, smart home, humanmachine interfaces
- Combination of Weebit ReRAM + EMASS' ultra-low power Al SoC, at a 22nm process node
  - Enhanced energy efficiency, reduced power consumption; instant system wake-up
- Collaboration proves the potential of a monolithic edge Al solution integrating ReRAM
  - Potential to deliver unprecedented performance and efficiency for smart edge-enabled devices

### **ReRAM Advantages for Al**

- >50X power advantage
- >10X memory bandwidth
- Significant cost savings
  - Eliminating external NVM components
  - Reducing SRAM size







**EMASS has recently transitioned away from MRAM** technology because ReRAM is better able to support next-generation systems in IoT, automotive, and consumer electronics.



Mohamed M. Sabry Aly, Founder of EMASS





Huge Opportunities Ahead Weebitnano



# **Addressing Fast-Growing Semiconductor Markets**

### >US\$200 Billion TAM in Customer Markets

\$61.7B by 2032 6.9% CAGR

**Edge AI Chips** 

**\$25.2B** by 2033

26.5% CAGR

Mixed-Signal Power Management



**Automotive Semiconductors** 

**\$97B** by 2029 **11.9% CAGR** 

IoT Microcontrollers

**\$11.15B** by 2029 **12.77% CAGR** 

IoT / MCUs



Semiconductor Markets



Aerospace & Defense



**A&D Semiconductors** 

**\$12B** by 2030 **9.5% CAGR** 



Implantable,
Hearables,
Disposables

Semiconductors in Healthcare

\$12.82B by 2029

11.4% CAGR



# **Emerging NVMs Growing Steadily**

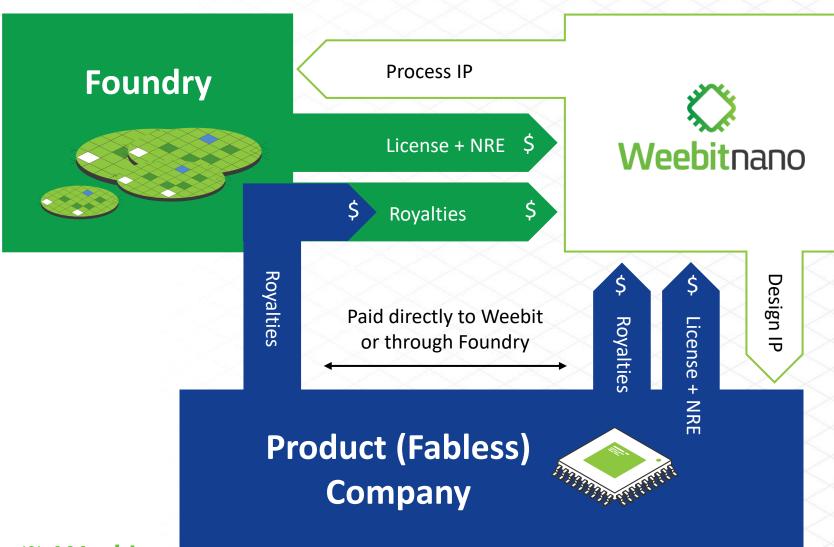
### Emerging Memory Revenues 2023-2034 (US\$M)\*





\* Source: A Deep Look at New Memories, Objective Analysis & Coughlin Associates, 2024 Baseline projection

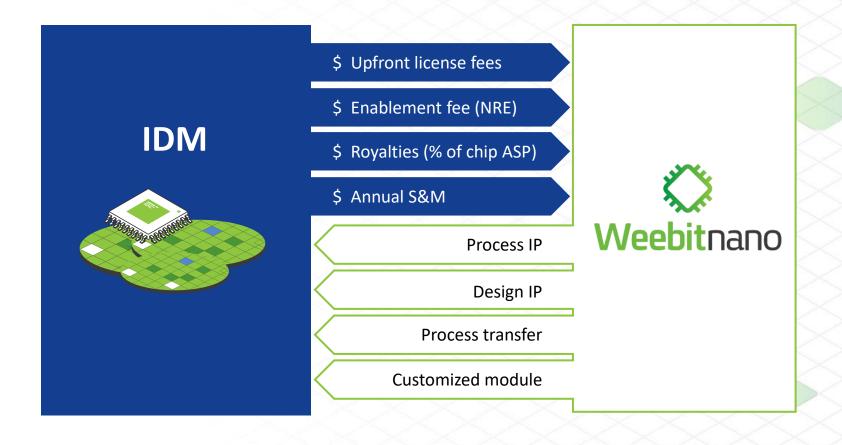
## **IP Business Model – Foundries & Fabless**



#### **Benefits of IP Model**

- Low COGS
  - Direct costs are associated with supporting and maintaining IP
  - No inventory
- High gross and operating margins
  - Once IP is created, it gets sold multiple times
  - Royalties go directly to the bottom line

## **IP Business Model – Benefits with IDMs**

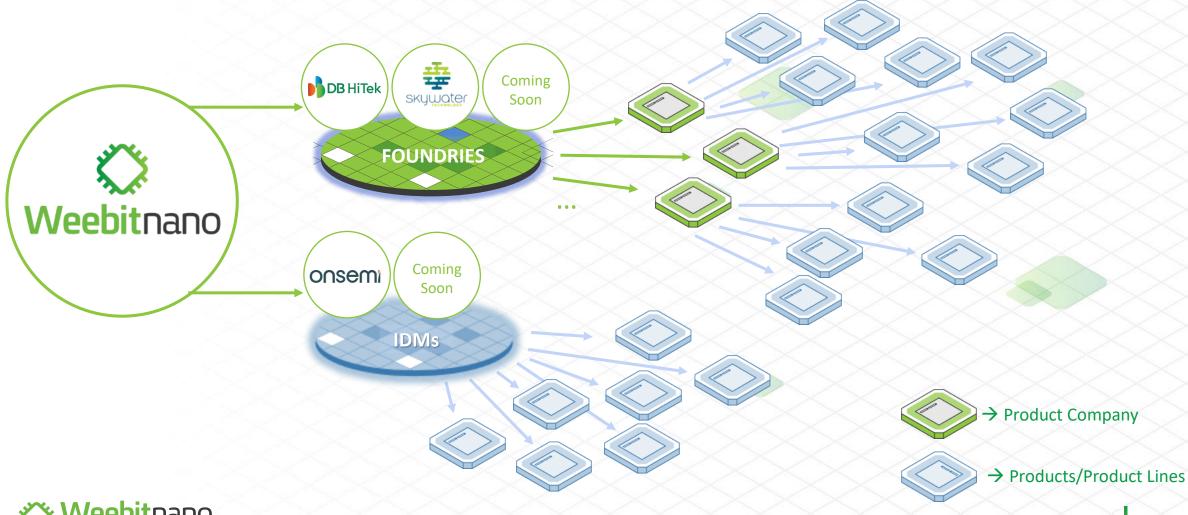


- IDMs design, manufacture and sell their own devices
  - Develop products quickly for target end markets
  - Can integrate IP in multiple designs / products

Accelerated time-to-market and time-to-revenue



# **Every Foundry Deal Represents Multiple Customer Opportunities**





What's Coming Next?



# **Progressing with Foundries, IDMs and Product Companies**

In different levels of evaluation/negotiation with most of the top foundries and IDMs

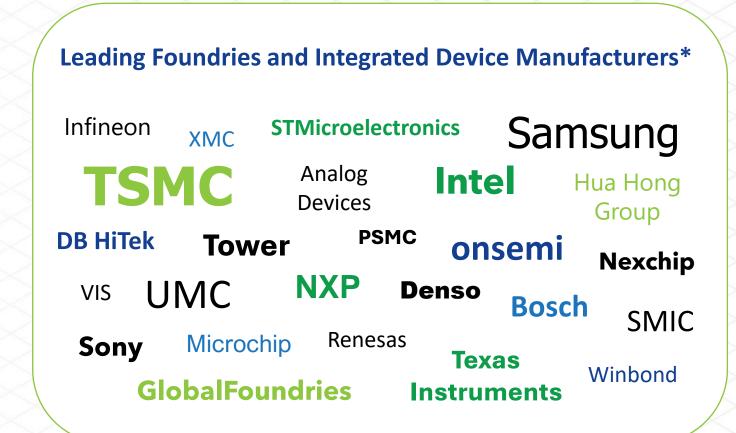
Increasingly moving from technical evaluations to business discussions

Making progress with product companies

**Expect to sign more agreements in 2025** 

**Increased selective activity with China** ecosystem

Participating as a partner in two government funded projects





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# **Scaling to Support Multiple Customers**

New VP Customer Success – team created to fill a vital need in coming years

#### The coming few years are pivotal for Weebit

- Support multiple fab projects in parallel
- Support rapidly growing number of product companies
- Constantly improve cost-effectiveness and efficiency

# Requires centralised project management and streamlined infrastructure

#### Scaling up critical support infrastructures

- Enhanced tools, procedures and methodologies
- Automation
- Growing the sales team
- New Customer Success team

# Introducing Lilach Zinger – VP Customer Success

- Lilach promoted to lead critical new effort
- Lilach has a wealth of expertise in managing complex industrial activities and recognising transformative technologies
- 20+ years at Tower, most recently as VP of Operations overseeing fab operations; enhancing customer relations and yield management
- 4+ years at PCB Technologies Ltd. as COO managing a large workforce and significant revenue





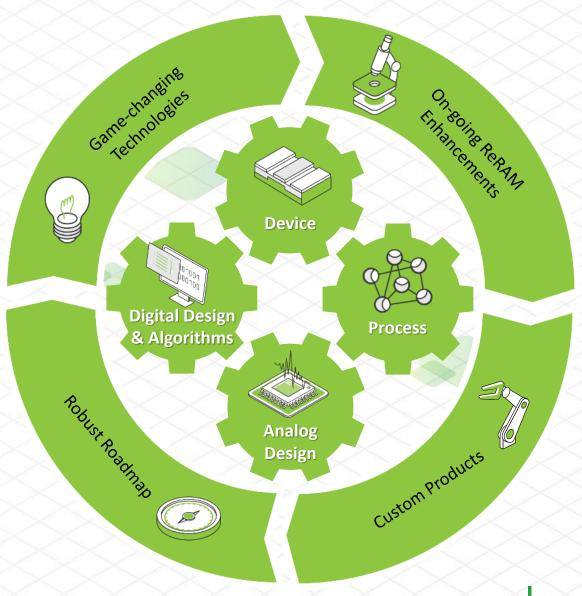
### We've Got What it Takes

State-of-the-art ReRAM requires intimate cooperation between the different disciplines

# Precise characterization and rigorous testing ensure continuous improvements

- ♦ Test and characterisation team enables fast adjustments → higher reliability/yield
- Advanced lab in-house enables very short loop

A focused, experienced, management team is critical





# Weebit Nano Key Targets Until End CY 2025



### **Fabs**

Three new licensing agreements



### **Products**

Three new agreements with product companies



# Qualification

Complete qualification at DB HiTek

Delivering on these milestones will continue to cement Weebit's position as the leading independent provider of ReRAM technology

These goals were set at the 2024 AGM.



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