

---

---

**FORM 6-K**

**SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

For the month March 2024 No. 3

**TOWER SEMICONDUCTOR LTD.**

(Translation of registrant's name into English)

**Ramat Gavriel Industrial Park**  
**P.O. Box 619, Migdal Haemek, Israel 2310502**  
(Address of principal executive offices)

Indicate by check mark whether the registrant files or will file annual reports under cover Form 20-F or Form 40-F.

Form 20-F  Form 40-F

Indicate by check mark whether the registrant by furnishing the information contained in this Form is also thereby furnishing the information to the Commission pursuant to Rule 12g3-2(b) under the Securities Exchange Act of 1934.

Yes  No

---



**SIGNATURES**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

**TOWER SEMICONDUCTOR LTD.**

Date: March 19, 2024

By: /s/ Nati Somekh

Name: Nati Somekh

Title: Corporate Secretary

---



# כנס שוק ההון הישראלי

יום שלישי 19.3.2024

# Safe Harbor

This presentation contains forward-looking statements within the meaning of the “safe harbor” provisions of the Private Securities Litigation Reform Act of 1995. These statements are based on management’s current expectations and beliefs and are subject to a number of risks, uncertainties and assumptions that could cause actual results to differ materially from those described in the forward-looking statements. All statements other than statements of historical fact are statements that could be deemed forward-looking statements. For example, statements regarding expected (i) customer demand, (ii) utilization and cross utilization of our Fabs, (iii) demand from our end markets, (iv) market and technology trends, and (v) results regarding revenues, cash flow, margins and net profits are all forward-looking statements. Actual results may differ materially from those projected or implied by such forward-looking statements due to various risks and uncertainties applicable to Tower Semiconductor’s business as described in the reports filed by Tower Semiconductor Ltd. (“Tower”) with the Securities and Exchange Commission (the “SEC”) and the Israel Securities Authority (“ISA”), including the risks identified under the heading “Risk Factors” in Tower’s most recent filings on Forms 20-F and 6-K. No assurances can be given that any of the events anticipated by the forward-looking statements will transpire or occur, or if any of them do, what impact they will have on the results of operations or financial condition of Tower Semiconductor. In addition, some of the financial information in this presentation, is non-GAAP financial measures, including, but not limited to, EBITDA, Cash, debt and Net Cash. These non-GAAP financial measures have the same definition as appear in our previously filed quarterly financial results related announcements and/ or other public filings.

Tower Semiconductor is providing this information as of the date of this presentation and expressly disclaims any obligation to update any of the forward-looking statements or other information contained in this presentation as a result of new information, future events or otherwise.

Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public



כנס שוק ההון הישראלי

יום שלישי 19.3.2024

# Agenda

## CEO Keynote

Russell Ellwanger, CEO

## Technology Leadership & Served Markets

Dr. Avi Strum, CTO

## Operational Excellence

Rafi Mor, COO

## Financial Strength

Oren Shirazi, CFO

## Q&A Panel

Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public





# Partnership, Leadership, Impact, Innovation Excellence

Russell Ellwanger, CEO

---



Washington, D.C. Statue on the left of the main entrance to the National Archives of the United States bears the inscription:

**"The heritage of the past is  
the seed that brings forth the  
harvest of the future"**

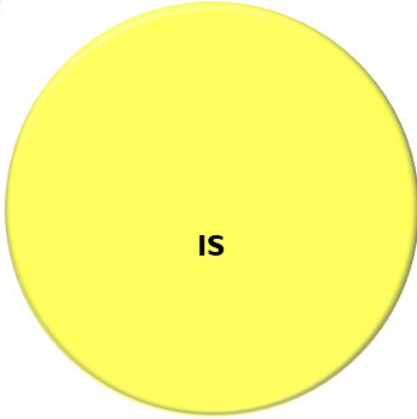
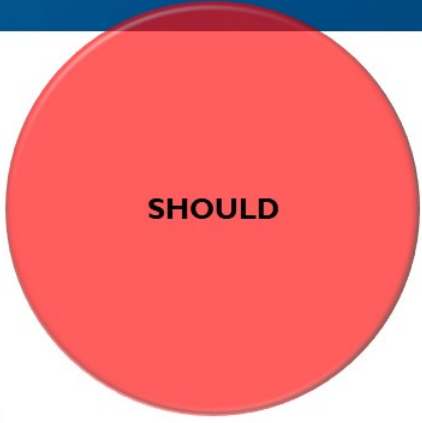
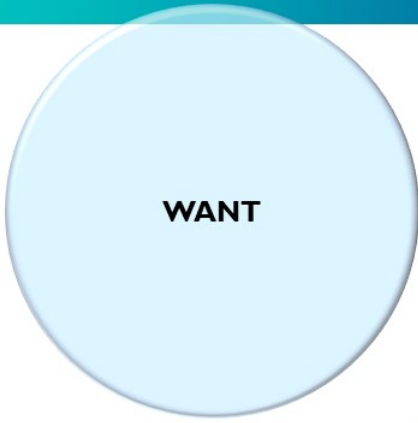
Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

**Tower**  
Semiconductor  
Where Analog meets Value





Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public



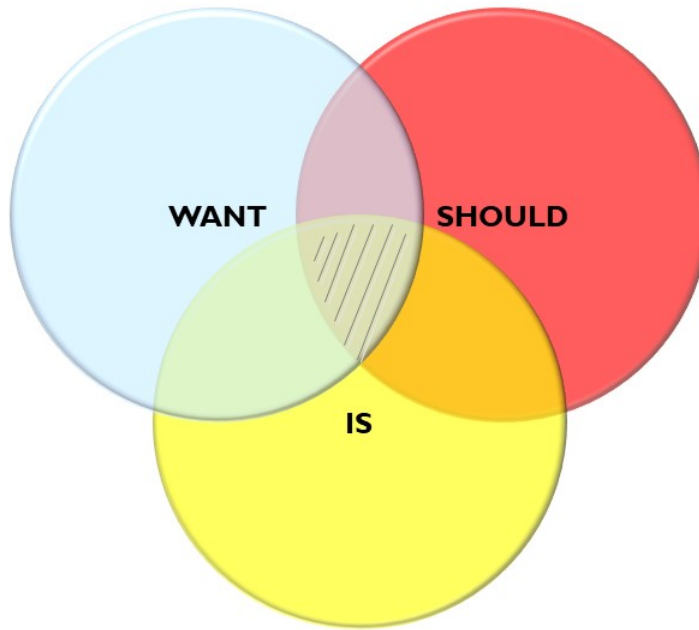
Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

## Our Vision:

Provide the highest value analog semiconductor solutions as validated by our customers, employees, shareholders and partners.

Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

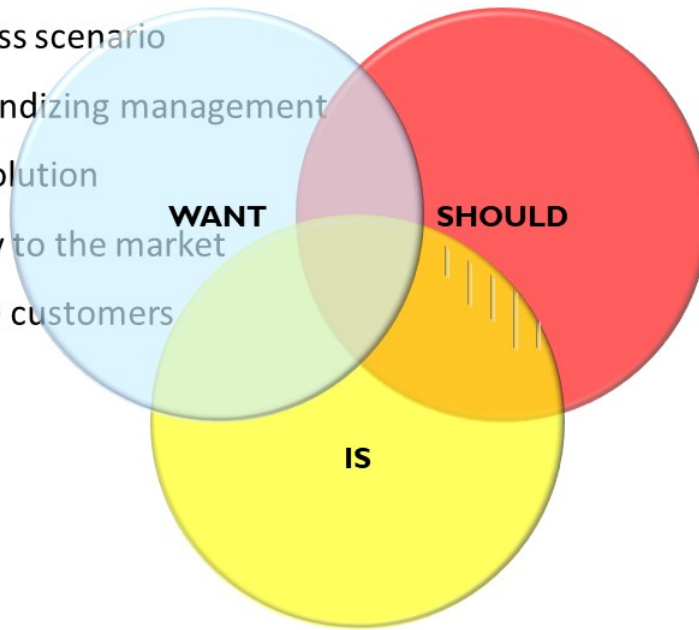




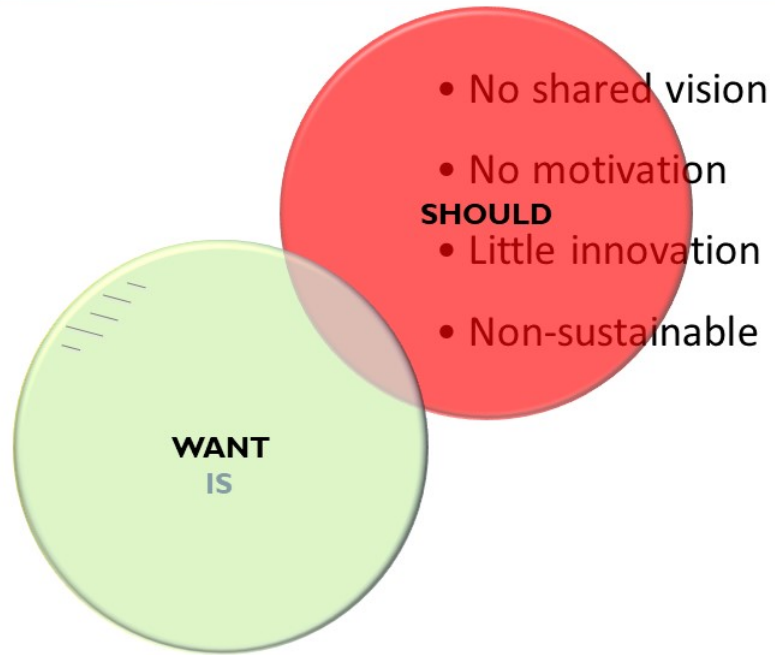
Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

# The Corporate World

- Go out of business scenario
- Selfish self-aggrandizing management
- No corporate evolution
  - No sensitivity to the market
  - No ear to the customers

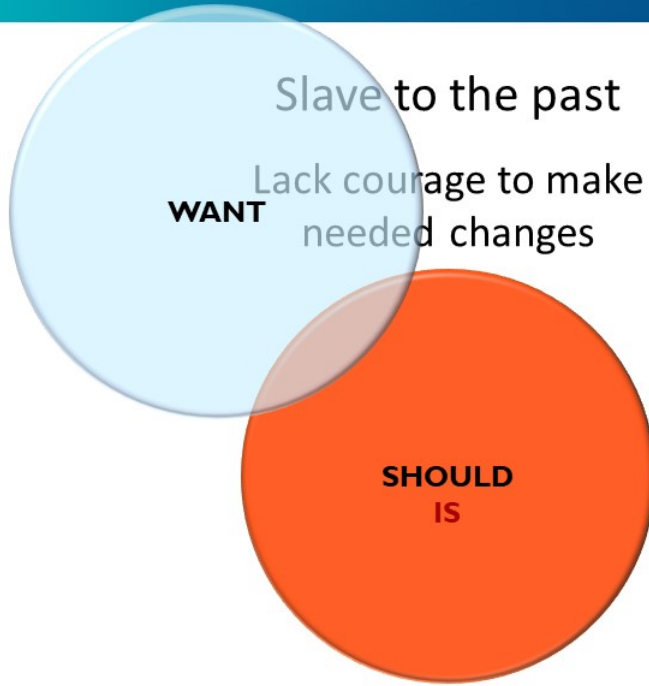


Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public



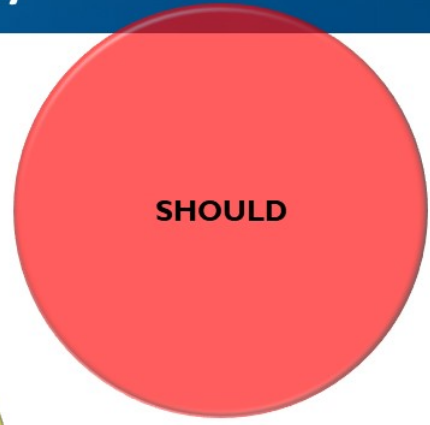
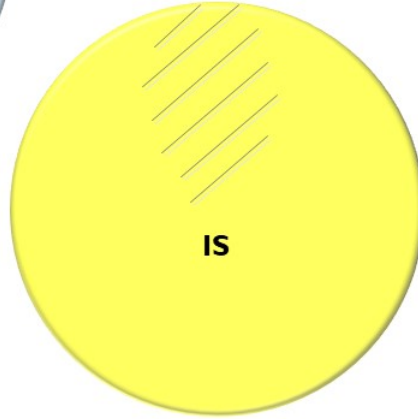
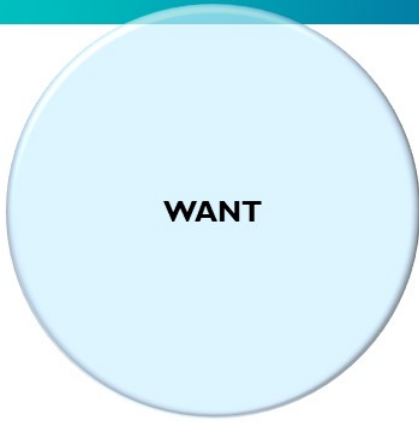
Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

# The Corporate World



Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

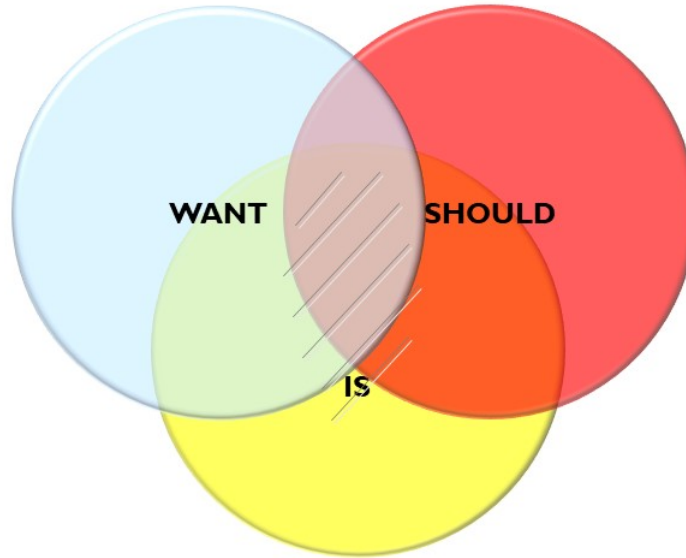
# The beginning of a successful company



Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public



Can increase degree of overlap by being:



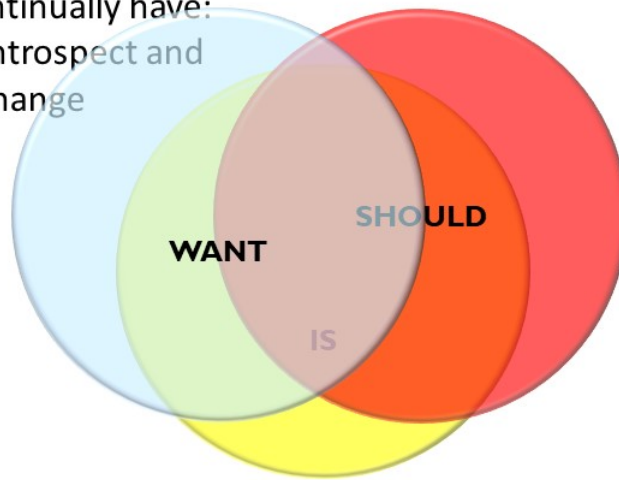
- Customers centric
- Setting and evaluating realistic but stretch-goals with definitive metrics
- Requires continual rapid cycles of learning

# The Corporate World

Even once aligned, market/customers insensitivity can cause them to move apart.

A company must continually have:

- (1) The honesty to introspect and
- (2) the courage to change



Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

# Value Vectors

We pursue excellence in all we do from ideation through product shipment. Hence, we deliver the best experience to our customers and employees

Being a trusted long-term partner for customers, employees and shareholders

Partnership

Leadership

Leading the analog ecosystem with technology and process solutions in exciting and growing markets



Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

## **Tower Semiconductor and InnoLight Partner to Develop Multi-Generation Silicon Photonics Based Optical Transceivers**

**400G/800G Transceivers built on Tower's production PH18M Silicon Photonics platform**

**Partnership to deliver solutions for the growing markets of Artificial Intelligence (AI), Datacenter Interconnects and Next-Gen Telecom**

**MIGDAL HAEMEK, Israel, and SUZHOU, China, Sept. 7, 2023** – Tower Semiconductor (NASDAQ/TASE: TSEM), a leader in high-value analog semiconductor foundry solutions, and InnoLight Technology, the leader in data center optics, today announced their collaboration to develop multi-generation high-speed optical transceivers based on Tower's Silicon Photonics process platform (PH18). With production already underway, this strategic partnership is expected to enable cutting-edge solutions to support the growing demands of AI, datacenters, and next-generation telecom networks. According to Yole, a market research firm, the silicon photonic die market is expected to grow at 22% CAGR reaching nearly half-a-billion dollars by 2027.

## **Coherent Awards Tower Semiconductor as an Outstanding Innovation and Technology Supplier for Silicon Photonics based Products**

**Tower's silicon photonics technology to be deployed by Coherent across multiple data rates for high-speed optical transceivers needs Technology for Micro Displays**

**PITTSBURGH, PA, and MIGDAL HAEMEK, Israel, March 18, 2024**– Coherent Corp. (NYSE: COHR), a global leader in materials, networking, and lasers, and Tower Semiconductor (NASDAQ/TASE: TSEM), the leading foundry of high-value analog semiconductor solutions, today announced that Coherent has recognized Tower Semiconductor as an Outstanding Innovation and Technology Supplier for its silicon photonics based optical transceiver products. This prestigious award recognizes Tower's unwavering long-term commitment to providing the most advanced technology solutions, enabling the development of Coherent's market-leading multiple data rate nodes for high-speed optical transceivers based on Tower's PH18 silicon photonics process technology. According to the Yole Group, the silicon photonics market is expected to grow at 44% CAGR from 2022 to 2028, supporting growth of AI, Data Center, and Network infrastructure.

Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

**Tower**  
Semiconductor  
When Doing our Work

## Ranking of Top 10 Transceiver Suppliers

2010	2016		2018	2022
Finisar	Finisar	1	Finisar	Innolight & Coherent
Opnext	Hisense	2	Innolight	(tie)
Sumitomo	Accelink	3	Hisense	Cisco (Acacia)
Avago	Acacia	4	Accelink	Huawei (HiSilicon)
Source Photonics	FOIT (Avago)	5	FOIT (Avago)	Accelink
Fujitsu	Oclaro	6	Lumentum/Oclaro	Hisense
JDSU	Innolight	7	Acacia	Eoptolink
Emcore	Sumitomo	8	Intel	HGG
WTD	Lumentum	9	AOi	Intel
NeoPhotonics	Source Photonics	10	Sumitomo	Source Photonics

**6 of the top 10 are our active customers** (not Huawei).

*Source: LightCounting*

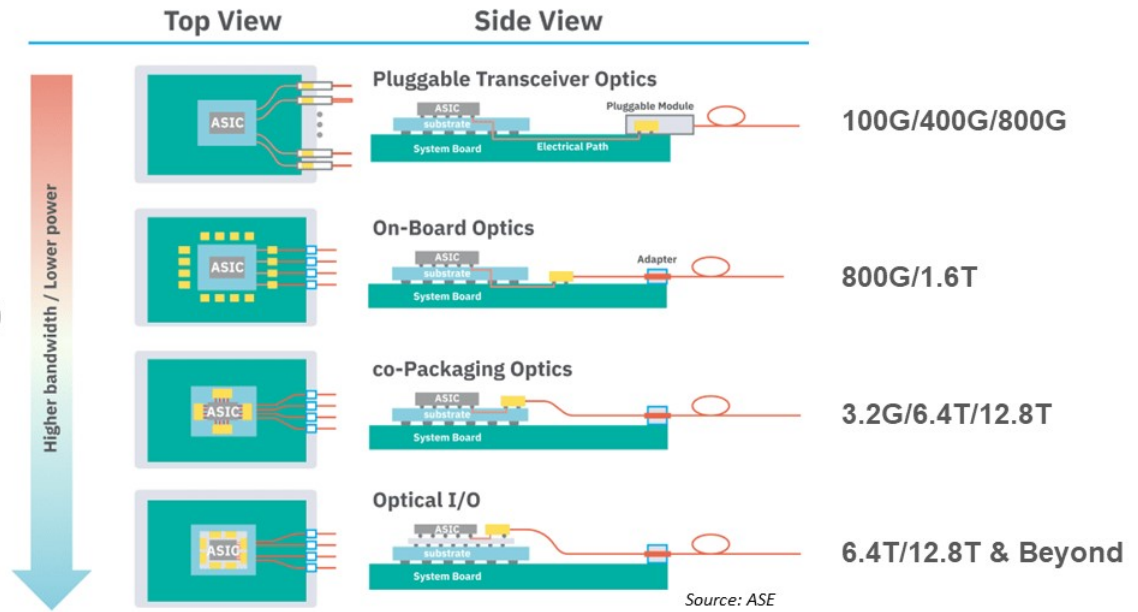
To note: Coherent is a result of an acquisition of Finisar.

Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

# Silicon Photonics: From Pluggable to CPO to Optical I/O

## Silicon Photonics enables

- Higher Bandwidth (Gbps)
- Lower Power (pJ/bit)
- Lower Cost (\$/Gbps)



Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

# Value Vectors

We pursue excellence in all we do from ideation through product shipment. Hence, we deliver the best experience to our customers and employees

Being a trusted long-term partner for customers, employees and shareholders

Partnership

Leadership

Leading the analog ecosystem with technology and process solutions in exciting and growing markets

**Excellence**

Effective, Efficient,  
Highest Quality  
Embedded in everything  
that we do

Making a positive and sustainable impact on the world

Impact

Innovation

An environment of innovation - moving great ideas into value

Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

# Financial Metrics of Excellence

- Effective ~ Gross Margin
  - High value offerings that enable customers at high capacity scale.
- Efficient ~ Point drop from Gross Margin to Operating Margin
  - Tower is a benchmark at about 10 points
  - Streamlined infrastructure leads to fast decision making and fast execution
    - Tower's process flow development is done in the Fab that will be running the flow => speed to ramp.
    - All process engineers are R&D engineers!

Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public





# Financial Metrics of Excellence (cont.)

- Highest Quality

- Tower top 20% by ranking and rating has a benchmark low attrition rate

	Actual		Actual
2023	2.4%	2015	2.2%
2022	3.0%	2014	3.8%
2021	3.4%	2013	3.4%
2020	1.5%	2012	4.4%
2019	2.4%	2011	2.6%
2018	0.9%	2010	2.2%
2017	3.7%	2009	2.3%
2016	0.5%		

Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

# Alice in Wonderland | Lewis Carroll

Alice approaching a crossroad, asked the Cheshire Cat



**Alice:** *"can you please tell me which way I ought to go from here?"*

**Cat:** *"that depends a good deal on where you want to get to"*

**Alice:** *"I don't much care where"*

**Cat:** *"then it doesn't much matter which way you go..."*

Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

**Tower**  
Semiconductor  
When Asking for Value, Ask for More

**We know  
where we  
are going!**

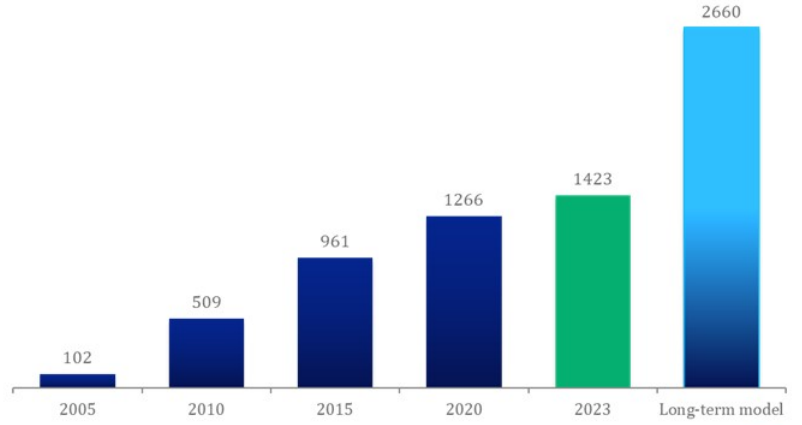


Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

# “What is past is prologue”

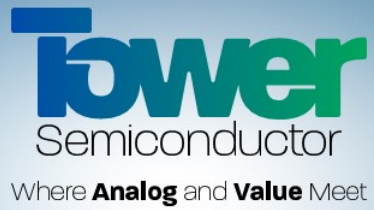


We have a rich past, an introduction for each of us to write the most amazing new chapter in the book of Tower.



Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public





# Technology Leadership and Served Markets

Dr. Avi Strum, CTO

---

## Analog Pure play foundry

- Serving over 300 customers globally

## Analog technology leadership

- Focus on RF, Power, Sensors & Displays

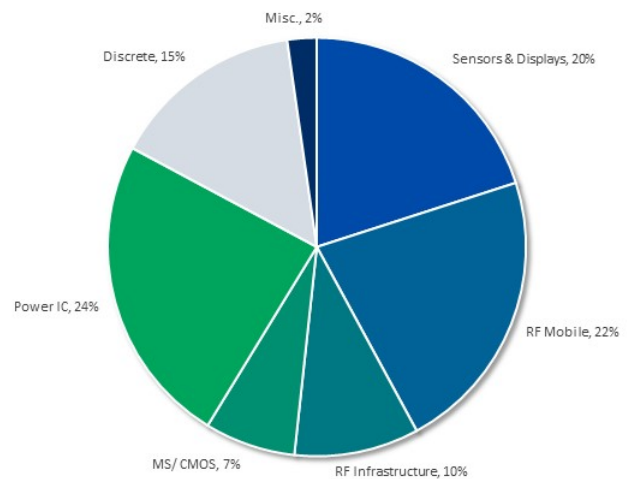
## Serving a wide range of end-markets

- Infrastructure, automotive, mobile, medical, industrial, consumer, aerospace and defense

## Operational Excellence

- Multi-fab production options across three geographic regions

## 2023 Revenue Breakdown



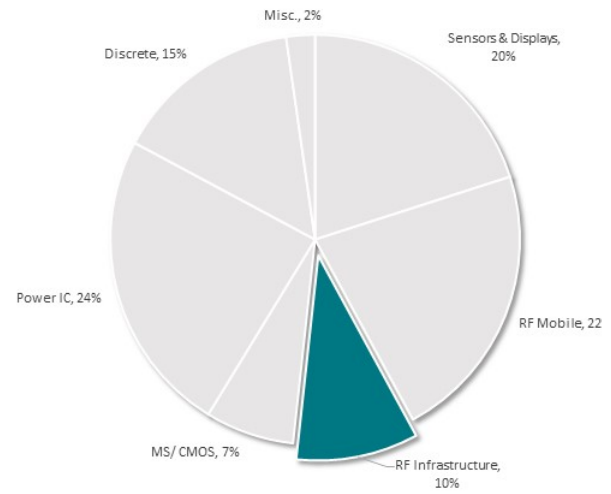
Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

# RF Infrastructure

## Datacom, Telecom and Artificial Intelligence

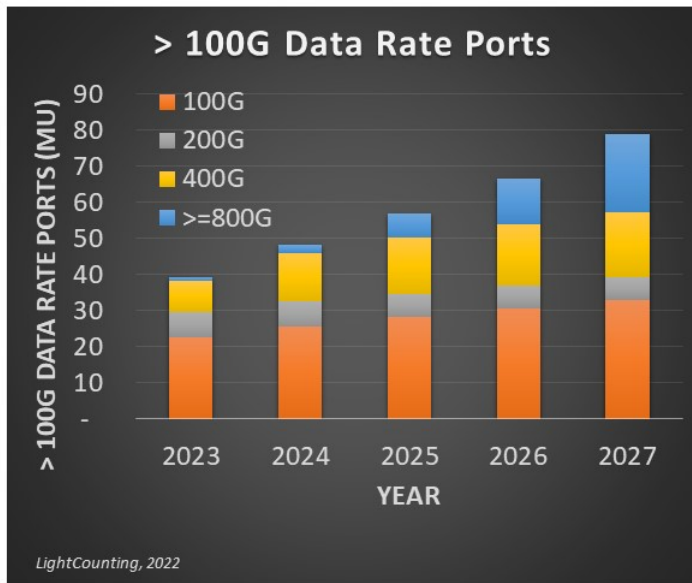


### Optical Fiber Transceivers HP SiGe and Si Photonics



Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

# Growth of Optical Transceivers

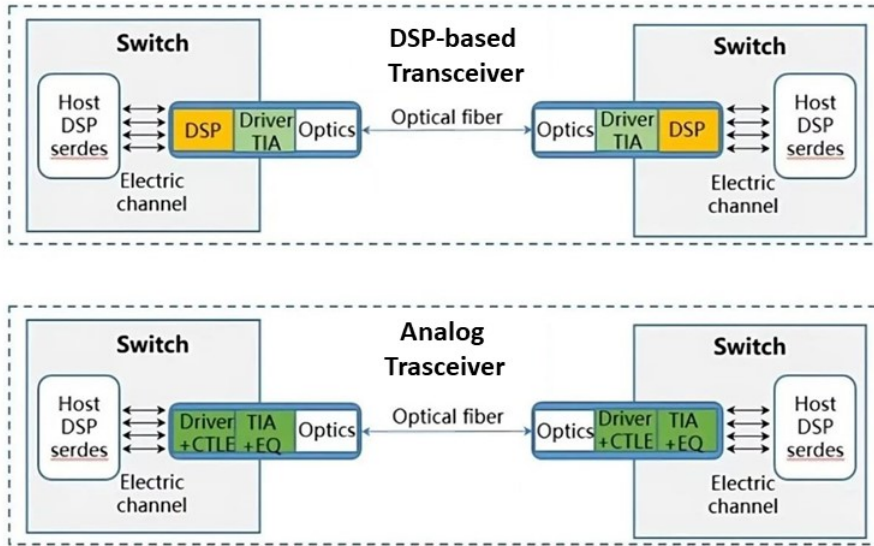


- Historically our market has been exclusively of **SiGe** optical transceiver components (drivers, TIAs, CDRs)
- Today, we are adding **Silicon Photonics** components at higher data-rates (400/800 G)
- Working with >50 active Silicon Photonics customers, announced production and partnerships with **Innolight** and **Coherent** (#1, #2 optical module providers) and **Marvell** (Tier 1 optical transceiver IC provider)

Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public



# Silicon Germanium: Linear Pluggable Optics (LPO) boosting SiGe opportunity



Linear Drive (no DSP)  
Lower Cost  
Lower Power  
Lower Latency  
↓  
Larger market for SiGe

Source: Ruijie Networks

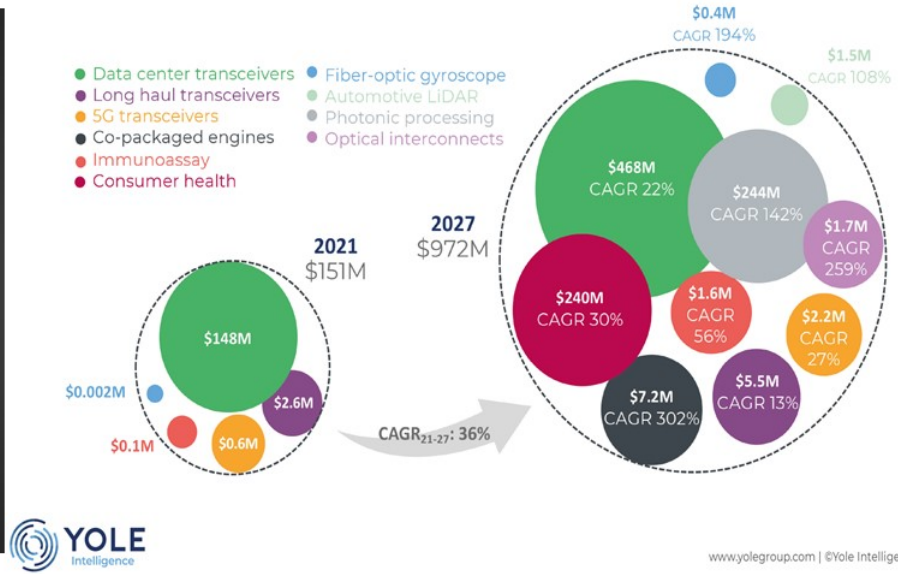
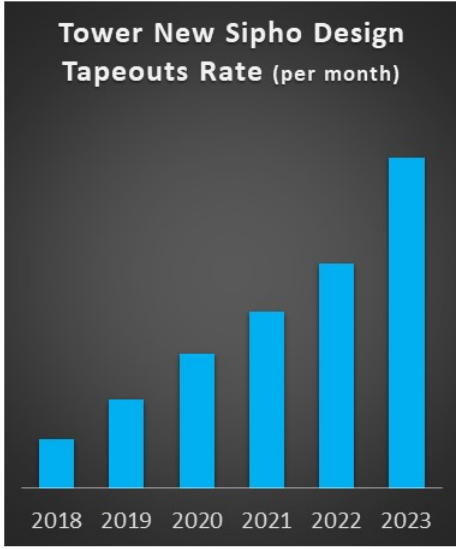
Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public



# Silicon Photonics Market

## 2021-2027 SILICON PHOTONIC DIE FORECAST BY APPLICATION

Source: Silicon Photonics 2022 Report, Yole Intelligence, 2022



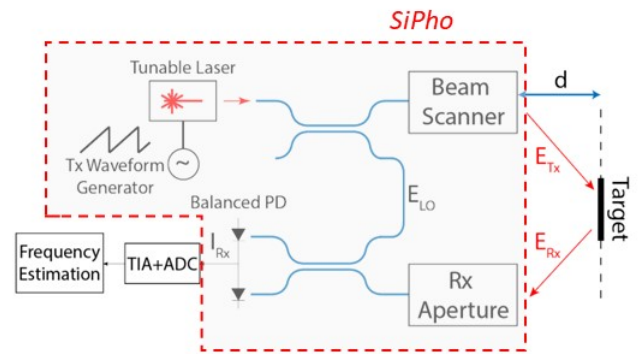
www.yolegroup.com | ©Yole Intelligence 2022

Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public



# SiPho based FMCW benefit for LiDAR

- FMCW LiDAR gives both the range (x, y, and z coordinates) and the relative velocity of surrounding objects, making it best suited for automotive applications
- SiPho enables a compact integration of all optical elements of an FMCW LiDAR: laser sources, optical modulators, mux/demux, couplers and photodetectors etc.
- SiPho also enables on-chip integration of Optical Phase Arrays (OPAs) for scanning the beam with high speed and reliability (no moving parts).



Adapted from Rezaei et al, Univ. of Washington (ASHES '22)

# Satellite based internet services

- Terrestrial receiver demand is growing
- SiGe based phased-array are key enablers
- ~250 phase-array ICs per terminal on average
- 80M\* new users expected over the next decade can drive an additional ~\$400M/year SiGe market

**Collaboration with Renesas to Manufacture SiGe-based Beamforming ICs for Tier-1 Customers in Satcom, 5G, and Aerospace & Defense Applications**

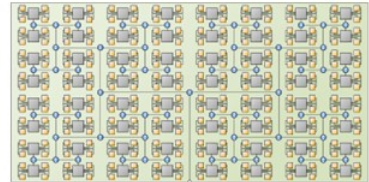
\* Euroconsult

## User Terminal Examples



*Shown for illustrative purpose only. Not an indication of Tower's content.*

## 256 Element Phased-Array Example



UCSD, IEEE MTT-S 2020   Baseband IF

*Shown for illustrative purpose only. Not an indication of Tower's content.*

Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public



## Tower Semiconductor Collaborates with Renesas to Manufacture SiGe-based Beamforming ICs for Tier-1 Customers in Satcom, 5G, and Aerospace & Defense Applications

The Satcom terrestrial market is expected to grow to 150M users by 2031 according to Euroconsult with the expansion of global satellite-based internet services

MIGDAL HAEMEK, Israel, January 16, 2024 – [Tower Semiconductor](#) (NASDAQ/TASE: TSEM), the leader in high-value analog semiconductor foundry solutions, today announced a collaboration with Renesas, leveraging Tower's high-volume and high-performance [SiGe BICMOS](#) technology to manufacture SiGe-based beamforming ICs. This strategic collaboration underscores Renesas' commitment to innovation as its broad portfolio of beamforming products has already achieved design wins by key worldwide players across 5G, satcom and Aerospace & Defense markets, positioning the company at the forefront of the industry.

The Satcom terrestrial terminal market is growing rapidly as satellite-based internet services proliferate globally. According to Euroconsult, a market research firm, 71 million people were connected to satellite broadband services in 2022. With rapid deployment of LEO satellite constellations, this number is expected to double in 2031, reaching over 150 million users. This translates to an increase of \$400M in the average yearly TAM for SiGe wafers over the coming decade.

"The unique advantages of Tower's SiGe BICMOS technology have empowered us to design and manufacture highly integrated and power efficient semiconductors that set new industry benchmarks," said Naveen Yanduru, VP of RF Communications at Renesas. "As evidenced by our design wins and volume shipments, the displacement of mechanical antennas by highly agile electronically steered antennas (ESAs) is well underway and will continue to drive exponential SAM growth for beamforming ICs in the coming years. With the continuously surging demand for millimeter-wave technology, our collaboration with Tower Semiconductor has positioned Renesas as a market leader," Mr. Yanduru added.

Renesas is a global leader in delivering cutting-edge solutions for the telecommunications industry and has made strides in the Satcom and 5G markets through its collaboration with Tower Semiconductor. This capability played a significant role in empowering Renesas to establish and solidify its market leadership.

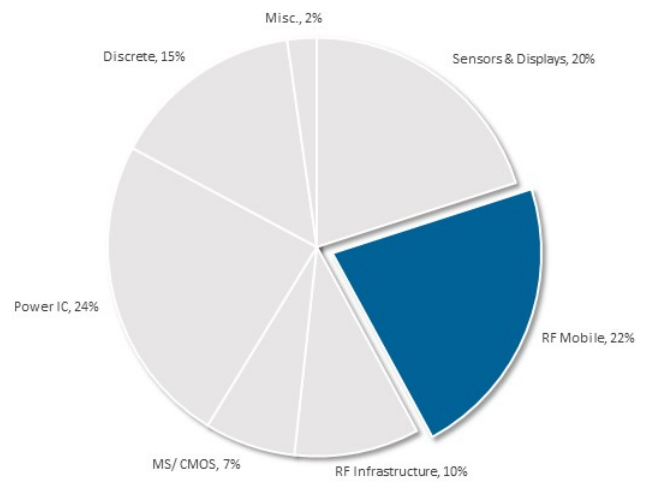
"We are excited to partner with Renesas in bringing these breakthrough products to market leveraging our industry leadership in SiGe foundry technology along with their strong product development, talent and market presence," noted Dr. Marco Racanelli, President at Tower Semiconductor.

"Our global capacity and engineering agility will ensure Renesas has both the ability to develop new, high-performance products and deliver these in high-volume to their Tier 1 customers."

**Tower Semiconductor Confidential and Proprietary**  
Information herein shall not be furnished to third parties or made public



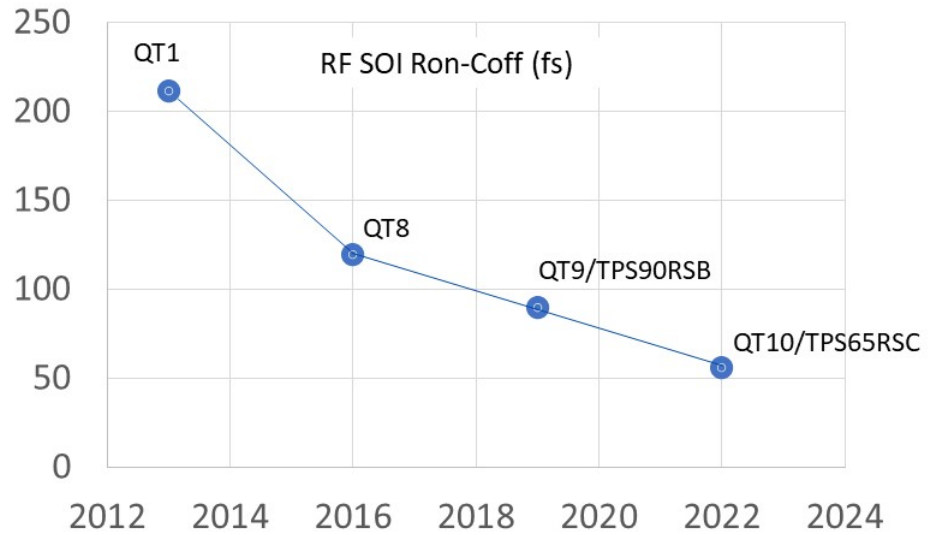
## Wireless Front-End Components Built on RF SOI and RF SiGe



Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

# RF SOI figure of merit roadmap

- 200mm and 300mm wafer sizes
- 180nm to 65nm nodes
- 4 factories in high volume + qualifying Agrate, Italy
- Best-in-class FoM and roadmap with low Ron-Coff and high power handling



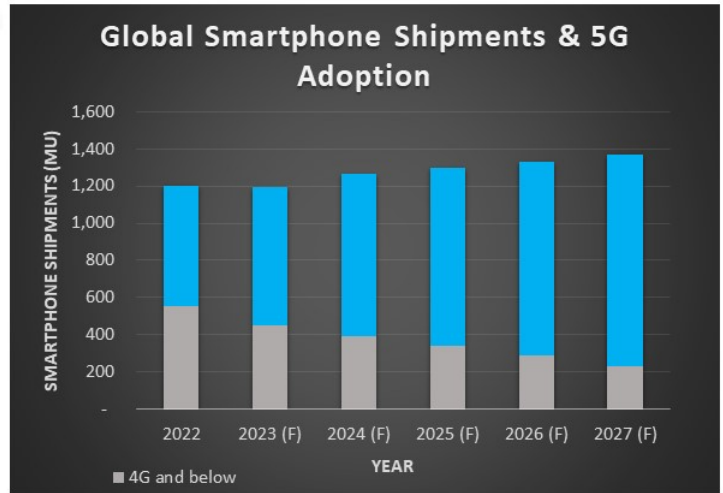
Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

## Wireless Front-End Built on RF SOI and RF SiGe Platforms

RF Switch	RF SOI
Antenna Tuner	RF SOI
Low-noise Amplifier	SiGe / RF SOI
Power Amplifiers	SiGe / RF SOI
mmWave	SiGe / RF SOI



## 5G adoption drives steady growth in RF content with 6G coming by 2030



Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public



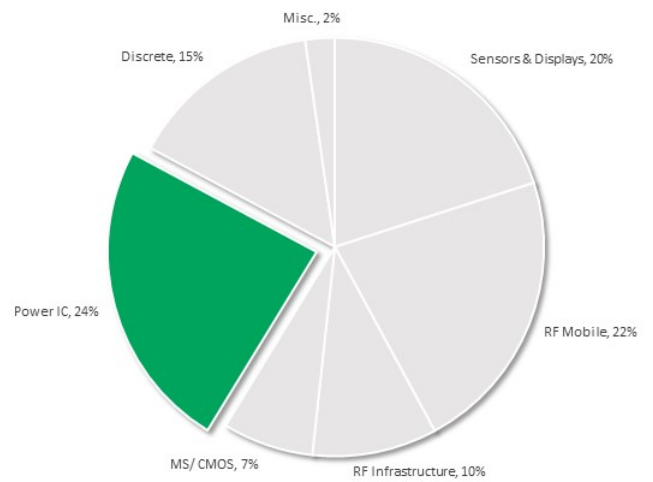
# Power and Mixed-Signal

## Largest Analog Market

- \$24B 2024 Power IC market per Yole

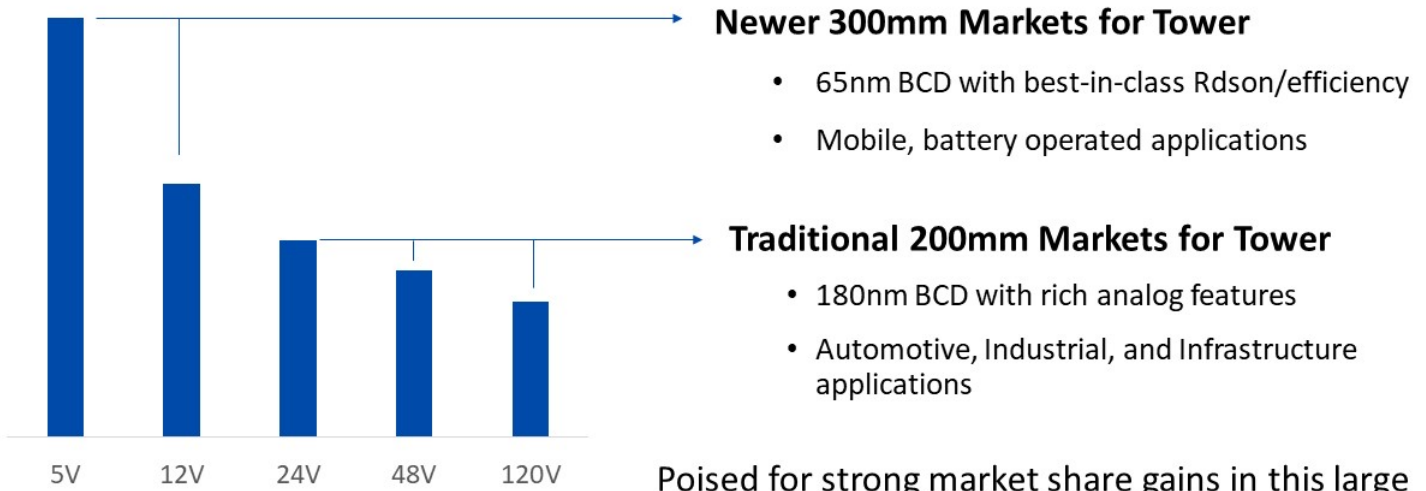
## Serving all major Semi Segments

- Automotive
- Industrial
- Consumer
- Infrastructure



Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

# Power IC Market (~\$24B\* Total)



**Market Size vs. Operating Voltage**

\* Yole: 2024 Power IC market

## Newer 300mm Markets for Tower

- 65nm BCD with best-in-class Rdson/efficiency
- Mobile, battery operated applications

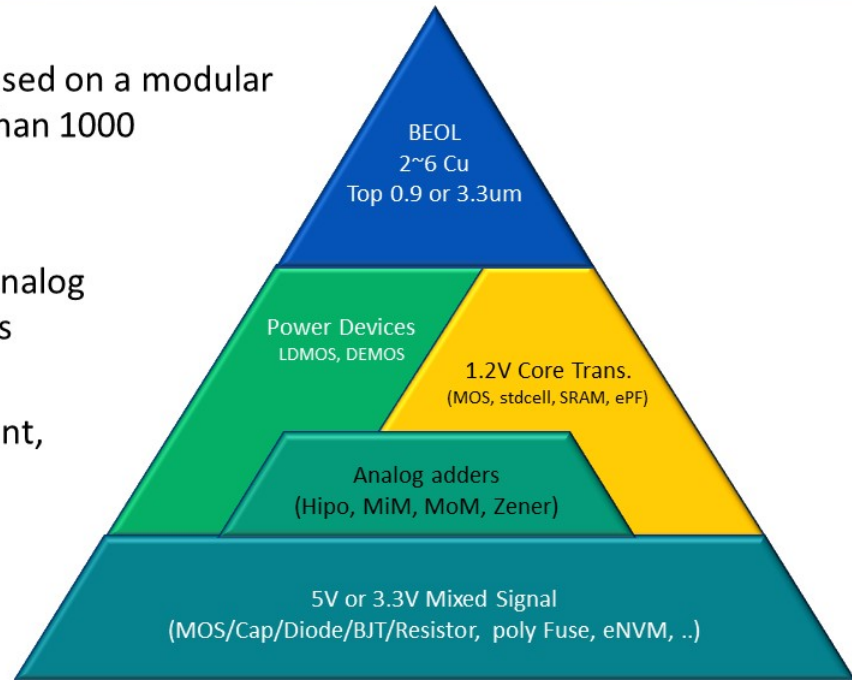
## Traditional 200mm Markets for Tower

- 180nm BCD with rich analog features
- Automotive, Industrial, and Infrastructure applications

Poised for strong market share gains in this large market with announced 300mm capacity, 65nm technology, and customers

# TPS65PM Modularity

- Tower's 65nm BCD technology is based on a modular process that potentially has more than 1000 different flavors
- It covers a wide range of Power & Analog applications with best-in-class FOMs
- This technology has a low mask count, achieved by sharing masks across different devices



Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

# Sensors and Displays

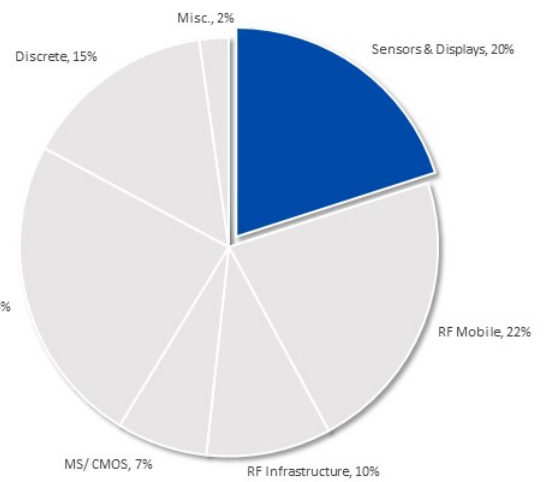
## CMOS Image Sensors High-Value Markets

- Medical
- Industrial
- Automotive



## uLED Display Solutions Emerging, Growth Markets

- AR/VR
- High Resolution Displays

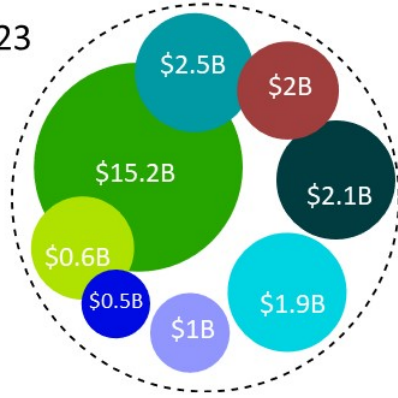


Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

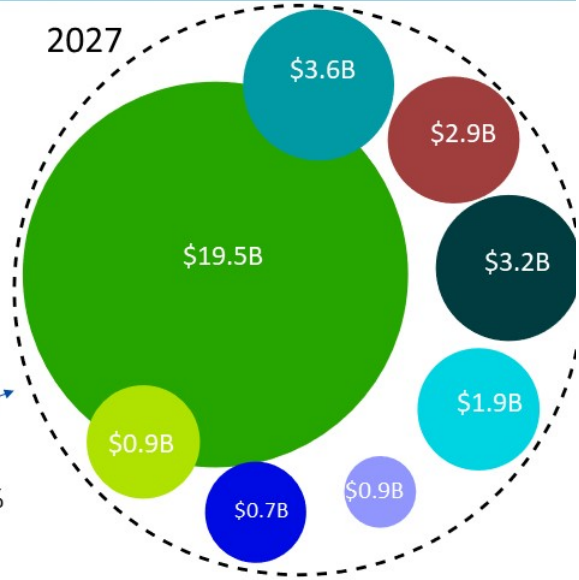
# CMOS Image Sensor market overview

Mobile	CAGR: 6.5	%
Consumer (incl. DSLR)	CAGR: -2.1	%
Computing	CAGR: -0.5	%
Automotive	CAGR: 11	%
Medical	CAGR: 12.4	%
Security (incl. ITS)	CAGR: 10	%
Industrial	CAGR: 9.5	%
Defense & aerospace	CAGR: 6.8	%

2023



2027



CAGR 6.7%

Source: Yole

Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

# High Value CIS Markets



## Medical and Dental X-Ray

**High value wafers** due to unique stitching technology for large sensors

- Intra and Extra Oral
- Mammography
- Surgical
- Up to 21cm x 21cm (1 DPW)



## High-end Photography

**High value wafers** due to unique pixel IP, stitch field for full-frame sensors and stacked BSI technology

- Cinematography
- Broadcasting
- High end photography



## Industrial Machine Vision

**High value wafers** due to unique global shutter, stitch field and stacked BSI

- 2-D barcode readers
- Food inspection
- Industrial robots
- Display / solar cell inspection
- ITS



Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

# Emerging High Growth Sensor and Display Markets



## Biometrics

Driven mainly by the mobile market

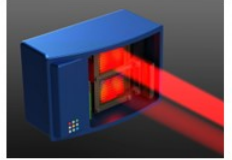
- Optical fingerprint lens-type sensors
- Face recognition (iToF)
- Palm recognition



## 3D sensing

Driven by high growing markets such as automotive (LiDARs) and AR (3D mapping)

- Automotive (dToF)
- Gaming (iToF/dToF)
- AR/VR depth sensors
- Robotics / Home Robotics (dToF)
- Fast camera autofocus

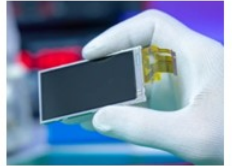


## Displays

Very high growth market (VR Displays)



- uOLED displays for VR goggles
- uLED on Silicon for next generation displays



Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

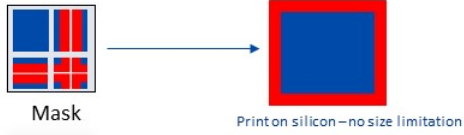
# Stitching technology

- Large Scale image sensor process using stitching

- 2 masks solutions :

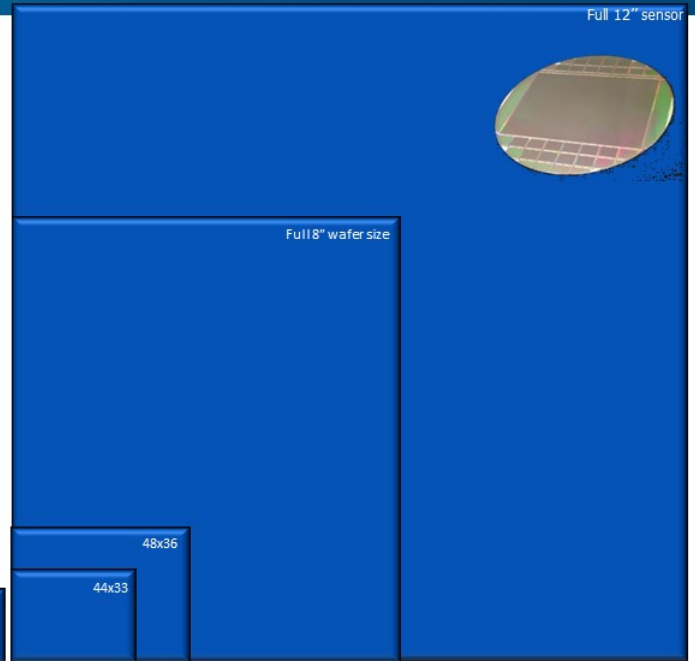


- Single mask solution

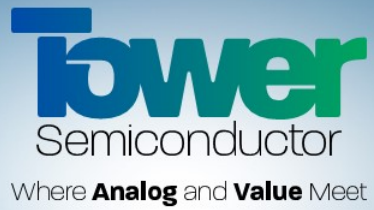


Tower Semiconductor Confidential and Proprietary

Information herein shall not be furnished to third parties or made public







# Operational Excellence

Rafi Mor, COO

---

# Tower Operational Strategy









- ❖ Leverage Tower Global operations to **pursue excellence in all what we do.**
  
- ❖ Quality, efficiency and effectiveness are the pillars of excellence and are indispensable to each other. We continually drive:
  - Highest standards of quality
  - Efficiency in processes, systems and procedures
  - Effectiveness in creation and implementation
  
- ❖ We are Committed to continuous improvement.
  - ❖ We continually develop and maintain large wafer capacity with duplication of major process flows across different geographic locations for BCP purposes.
  - ❖ Load the Fabs to high utilization while delivering the best-in-class KPI's.

Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public



# Adding significant 300mm capacity to grow scale

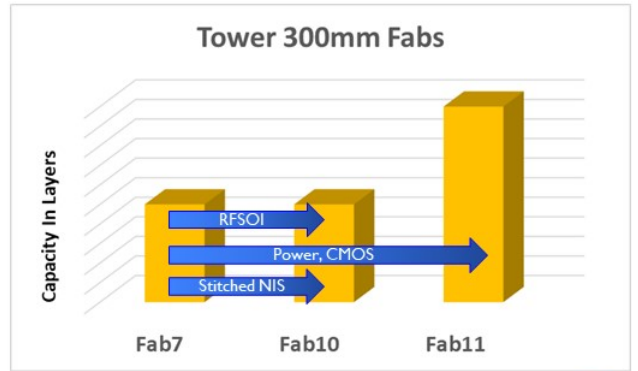
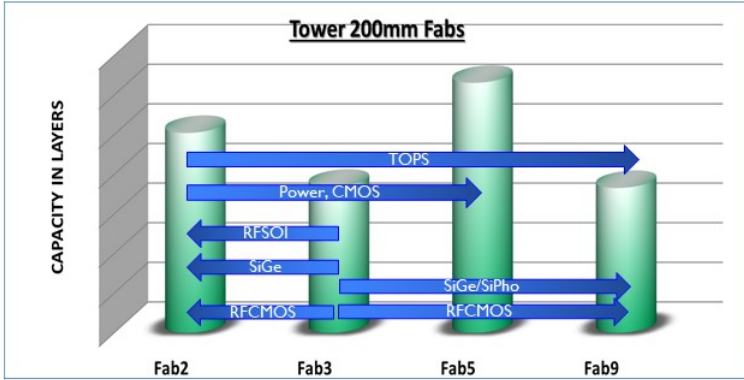
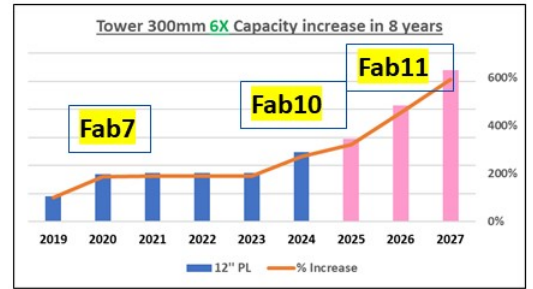
- Six factories in high-volume production
- Two additional 300mm factories being qualified to meet forecasted growing demand with biz models minimizing time to volume and cost.

Migdal Haemek, Israel		Migdal Haemek, Israel		Newport Beach, USA		San Antonio, USA			
	6", 150mm Sensors, Power 1µm to 0.35µm		8", 200mm RF SOI, Sensors, Power 0.18µm to 0.13µm		8", 200mm SiGe, SiPho, RF SOI 0.5µm to 0.13µm		8", 200mm RF SOI, Power, SiGe 0.18µm		
Tonami, Japan		Uozu, Japan		New 12" Capacity					
	8", 200mm Power 0.18µm		12", 300mm RF SOI, Power, Sensors 65nm & 45nm		Agrate, Italy			Albuquerque, USA	
				12", 300mm RF SOI, Displays, Power 65nm				12", 300mm Power, RF SOI 65nm	

Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

# Tower Operations - Global capacity assurance

- **3.1M Wafers / Year (200mm equivalent).** Enabling 200mm and 300mm multi-fab wafer production.
  - Cross Qualification answer customers BCP needs and maximized utilization and customer assurance
  - Fab-10 started production ramp in Q1 2024.
  - Fab11 will start production ramp in Q1 2025.



Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

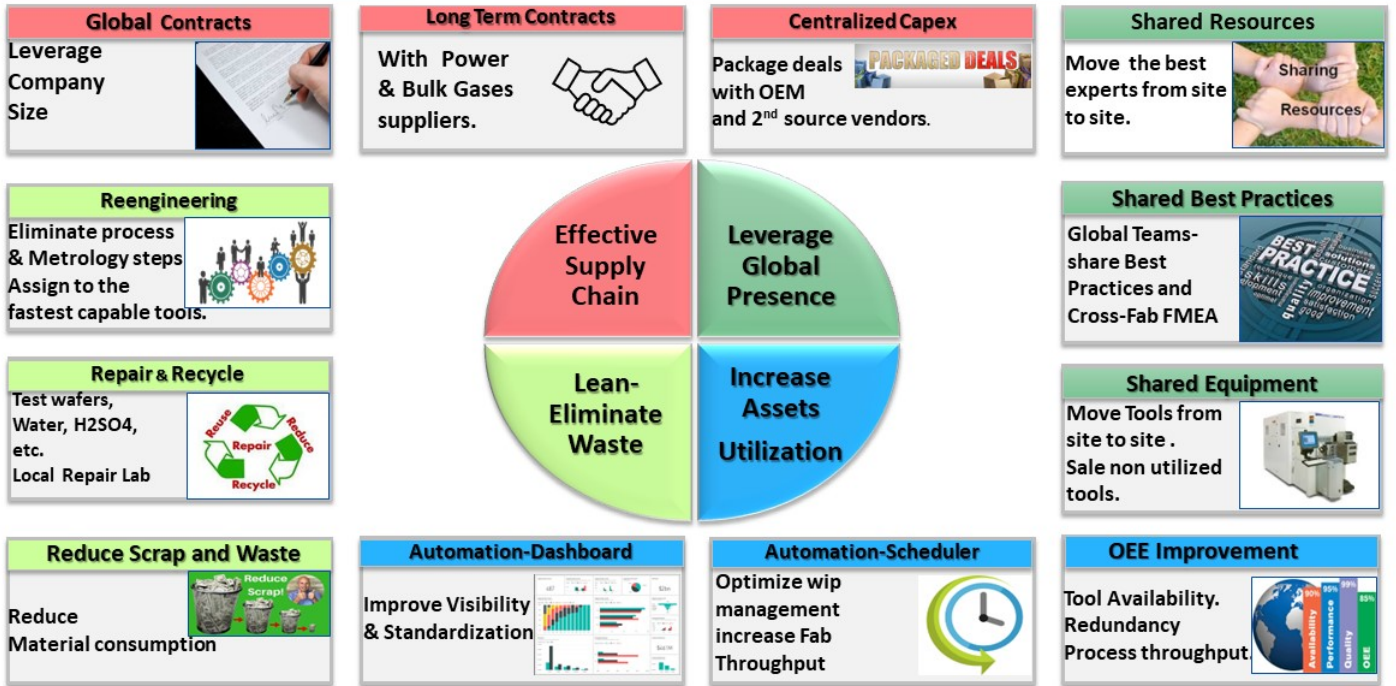


# Operational Excellence – Best in class KPI's among Analog Fabs

<b>1</b>   <b>Capacity &amp; Utilization</b>	<b>High Asset utilization of <math>\geq 85\%</math>, with minimal affect on fab performance</b> Duplicate major flows between Fabs to increase operational flexibility.
<b>2</b>   <b>OSD &amp; Cycle Time</b>	<b>Strive for Best in benchmark OSD and Cycle time</b> OSD $> 97\%$ and Cycle time $< 2.0$ DPL at 65nm Technology.
<b>3</b>   <b>Cost Savings</b>	<b>Must produce parts at the lowest possible cost</b> OEE improvement on Bottleneck Tools, Qualify alternative materials and Parts, Reduce material usage, Lower price on same materials.
<b>4</b>   <b>Quality:</b> Plant Yield Die Yield & RMA	<b>Cpk <math>&gt; 1.67</math>, Plant Yield <math>&gt; 98\%</math>, RMA <math>&lt; 0.2\%</math>, typical Die Yield <math>&gt; 95\%</math>.</b> Support Automotive customers. ISO Certified for : Quality ; Environmental; IP Security; Safety; and Automotive. Reduce CONQ.
<b>5</b>   <b>New Technologies Ramp to Mass Production</b>	<b>Align the Technological Roadmap with customers wants and needs</b> Transfer new technologies from the R&D to the Fabs and Ramp into mass production with the Quality mentioned above.

Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

# Operational Excellence - Improve Operational Efficiency



Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

# Global **Knowledge Sharing** platform

Enabling operation to improve the quality and efficiency by learning proactively from other sites and solved problems faster by consulting organization experts

-  **Data search** – search information on events, change control, articles, non-conforming material, etc.
-  **Common tools** –Identify tools and processes owners and experts and identify automatically identical tools in different sites to enable knowledge sharing.
-  **Technology search** –Identify technologies experts and identify automatically identical technologies in different sites to enable knowledge sharing.
-  **Tower dictionary** – explain Tower terms and abbreviations
-  **OEE** – global data base of tools performance to state differences between FABs and drive performance to the best one.



Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public



**Tower**  
Semiconductor  
Where **Doing** and **Value** Meet

# Develop E-learnings, WEB based trainings to improve the skills of all employees in the global operations

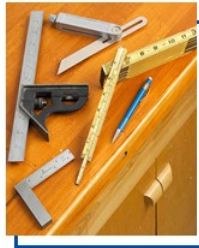
Trainings were developed for the following topics: Knowledge sharing, CCB, non-conforming material, Measurement system analysis, Crash, Overall Equipment Effectiveness (OEE), Basic statistics, statistical Hypothesis tests, Statistical Process Control (SPC).



Change Management (CCB)



Non Conforming Material



Measurement System Analysis (MSA)



Operation Under Crash Situation



Knowledge Sharing



Basic Statistics



5S



Overall Equipment Effectiveness (OEE)



Problem Solving



WIP management

Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public



# Tower Semiconductor is Going Green, Results also in increase Efficiency

TSEM broadening its presence into renewable energy and green initiatives. Invested in key projects which enables improvement in water and electricity usage.



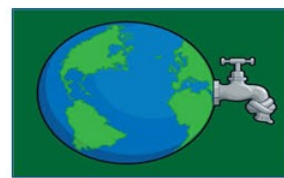
**Reduction in power usage** by installing solar panels in Fab1&Fab2 Roof with estimated **4400MWh** yearly production.



**Waste Reduction:**  
Recycle **3K ton/year** of H2SO4



Global initiatives to reduce **Electricity consumption** of **18,000 MWh/year** such as installing *smart devices that regulate power consumption, upgrading the chillers, replacing the cooling tower and replacing neon light bulbs with LED bulbs*



Total of **774,500 m3/year** **water consumption** were reduced through *recycling projects*.

- The total electricity savings per year is equivalent to yearly electricity consumption of about **1800 private households** or 16 million pounds of coal burned
- The total water saving is equal to the annual water consumption of a town with a population of **20000 people**



# The Best Confidence Builder is High Yielding Wafer Shipped on Time

- **Large Capacity Globally and High Assets Utilization:**

Quality technologies at multiple TowerJazz Sites to utilize all Fabs at >85%, allowing us to better serve increasing customer demand.

- **Reduced Lead Time:**

To shorten Time to Market for new products

→ Fuel our customer's future growth!

- **Improved Efficiency :**

OEE Improvement to reduce Capex investment.

COGS Savings maintain competitive

- **Exceptional Quality:**

PPB level Field Failures & High Yields - to delight existing customers and win new



Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

**Tower**  
Semiconductor  
Where **Doing** is **Value** Done



# Financial Strength

Oren Shirazi, CFO

# Financial Model (\$M)

	2023	Built-out capacity @85% utilization*	Incremental	
			\$M	% of Incremental Revenue
Revenue	1,423	1.9X	1,237	
Gross Profit	354	2.1X	386	31%
Operating Profit	234 **	2.4X	326	26%
Net Profit	229 **	2.2X	271	22%

\* Including New Mexico capacity corridor and Agrate capacity based on previously announced Cap-Ex investments

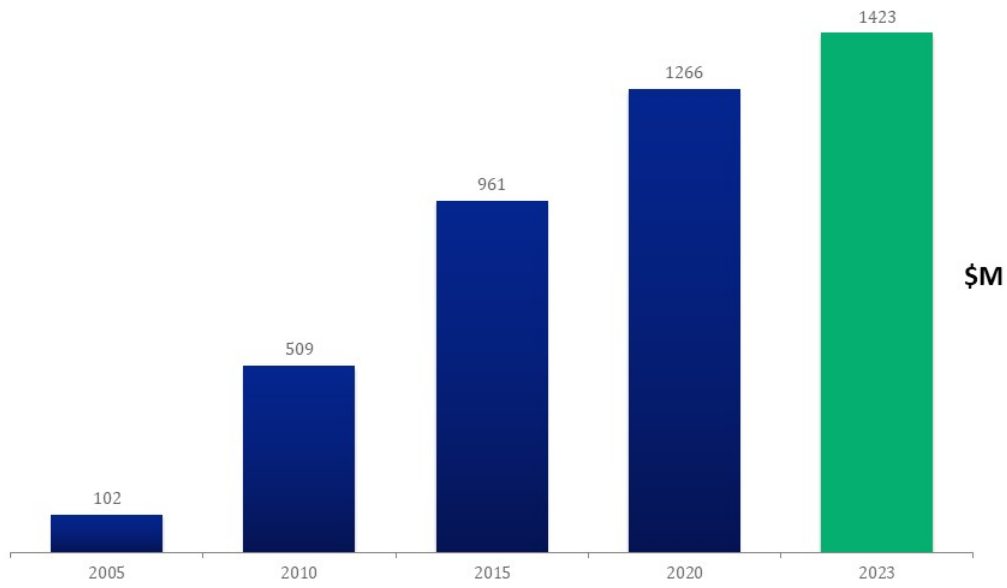
\*\* Excluding Intel merger contract termination fees received in Q3'2023, net of associated cost and taxes

Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public



# Annual Revenue

(5-year Tracking & 2023)



Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public



# Balance Sheets (\$ in million)

	December 31, 2023	September 30, 2023	December 31, 2022
<b>CURRENT ASSETS</b>			
Cash and cash equivalents	261	315	341
Short-term deposits	791	735	495
Marketable securities	185	179	170
Trade accounts receivable	154	150	153
Inventories	282	304	302
Other current assets	36	34	34
<b>Total Current Assets</b>	<b>1,709</b>	<b>1,717</b>	<b>1,495</b>
Property and equipment, net	1,156	1,062	962
Intangible assets, net	12	13	14
Deferred tax and other long-term assets, net	41	44	77
<b>TOTAL ASSETS</b>	<b>2,918</b>	<b>2,836</b>	<b>2,548</b>
<b>CURRENT LIABILITIES</b>			
Short-term debt	59	48	62
Trade accounts payable	138	106	151
Customer prepayment and deferred revenue	18	24	39
Other current liabilities	61	80	135
<b>Total Current Liabilities</b>	<b>276</b>	<b>258</b>	<b>387</b>
Long-term debt	173	180	210
Customer prepayment	26	30	41
Deferred tax and other long-term liabilities	16	19	21
<b>TOTAL LIABILITIES</b>	<b>491</b>	<b>487</b>	<b>659</b>
<b>Shareholders' Equity</b>	<b>2,427</b>	<b>2,349</b>	<b>1,889</b>
<b>TOTAL LIABILITIES &amp; EQUITY</b>	<b>2,918</b>	<b>2,836</b>	<b>2,548</b>

Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

## Cash Reports (\$ in million)

	Q4'23	Q3'23	Q4'22
Cash opening balance, excluding securities & deposits	315	318	390
Cash from operating activities	126	402 *	133
Cap-Ex, net	(136)	(101)	(38)
Investments in securities, deposits & long-term assets	(37)	(318)	(150)
Debt repaid and others, net	(7)	14	6
Cash closing balance, excluding securities & deposits	261	315	341

	FY'23	FY'22
Cash opening balance, excluding securities & deposits	341	211
Cash from operating activities	677 *	530
Cap-Ex, net	(432)	(214)
Investments in securities, deposits & long-term assets	(289)	(116)
Debt repaid and others, net	(36)	(70)
Cash closing balance, excluding securities & deposits	261	341

\* Cash from operations includes Intel termination fee, net of cost, in the amounts of \$314M received in Q3'23 and FY'23

Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public



# FY'23 P&L vs. FY'22 P&L

(in thousands of \$)

	Year ended	
	December 31,	
	2023	2022
REVENUES	\$ 1,422,680	\$ 1,677,614
COST OF REVENUES	1,069,161	1,211,306
GROSS PROFIT	353,519	466,308
OPERATING COSTS AND EXPENSES:		
Research and development	79,808	83,911
Marketing, general and administrative	72,454	80,282
Restructuring income, net	(32,506)	(9,559)
Merger-contract termination fee, net	(313,501)	—
	(193,745)	154,634
OPERATING PROFIT	547,264	311,674
FINANCING AND OTHER INCOME (EXPENSE), NET	37,578	(19,701)
PROFIT BEFORE INCOME TAX	584,842	291,973
INCOME TAX EXPENSE, NET	(65,312)	(25,502)
NET PROFIT	519,530	266,471
NON CONTROLLING INTEREST	(1,036)	(1,902)
NET PROFIT ATTRIBUTABLE TO THE COMPANY	\$ 518,494	\$ 264,569
BASIC EARNINGS PER SHARE	\$ 4.70	\$ 2.42
DILUTED EARNINGS PER SHARE	\$ 4.66	\$ 2.39
GAAP NET PROFIT	\$ 518,494	\$ 264,569
Stock based compensation	27,931	24,215
Amortization of acquired intangible assets	1,923	2,033
Restructuring income, net	(11,224)	(7,056)
Merger-contract termination fee, net	(289,988)	—
ADJUSTED NET PROFIT	\$ 247,136	\$ 283,761
ADJUSTED DILUTED EARNINGS PER SHARE		
Basic	\$ 2.24	\$ 2.60
Diluted	\$ 2.22	\$ 2.56

Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public



# Q4'23 P&L vs. Q3'23 and Q4'22 P&L

(in thousands of \$)

	Three months ended		
	December 31,	September 30,	December 31,
	2023	2023	2022
REVENUES	\$ 351,711	\$ 358,167	\$ 403,227
COST OF REVENUES	267,294	271,299	278,501
GROSS PROFIT	84,417	86,868	124,726
OPERATING COSTS AND EXPENSES:			
Research and development	20,849	20,176	20,706
Marketing, general and administrative	18,401	18,037	18,880
Restructuring income, net	—	—	(13,592)
Merger-contract termination fee, net	—	(313,501)	—
	39,250	(275,288)	25,994
OPERATING PROFIT	45,167	362,156	98,732
FINANCING AND OTHER INCOME (EXPENSE), NET	16,682	9,975	(55)
PROFIT BEFORE INCOME TAX	61,849	372,131	98,677
INCOME TAX EXPENSE, NET	(10,130)	(34,394)	(12,835)
NET PROFIT	51,719	337,737	85,842
NON CONTROLLING INTEREST	2,128	4,318	(2,518)
NET PROFIT ATTRIBUTABLE TO THE COMPANY	\$ 53,847	\$ 342,055	\$ 83,324
BASIC EARNINGS PER SHARE	\$ 0.49	\$ 3.10	\$ 0.76
DILUTED EARNINGS PER SHARE	\$ 0.48	\$ 3.07	\$ 0.75
GAAP NET PROFIT	\$ 53,847	\$ 342,055	\$ 83,324
Stock based compensation	6,662	7,898	6,431
Amortization of acquired intangible assets	442	491	510
Restructuring income, net	—	—	(8,966)
Merger-contract termination fee, net	—	(289,988)	—
ADJUSTED NET PROFIT	\$ 60,951	\$ 60,456	\$ 81,299
ADJUSTED DILUTED EARNINGS PER SHARE			
Basic	\$ 0.55	\$ 0.55	\$ 0.74
Diluted	\$ 0.55	\$ 0.54	\$ 0.73

Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public

# Financial Model (\$M)

	2023	Built-out capacity @85% utilization*	Incremental		
			\$M	% of Incremental Revenue	
Revenue	1,423	1.9X	2,660	1,237	
Gross Profit	354	2.1X	740	386	31%
Operating Profit	234 **	2.4X	560	326	26%
Net Profit	229 **	2.2X	500	271	22%

\* Including New Mexico capacity corridor and Agrate capacity based on previously announced Cap-Ex investments

\*\* Excluding Intel merger contract termination fees received in Q3'2023, net of associated cost and taxes

Tower Semiconductor Confidential and Proprietary  
Information herein shall not be furnished to third parties or made public



**Tower**  
Semiconductor

Where **Analog** and **Value** Meet

**Thank You**

[www.towersemi.com](http://www.towersemi.com)

---

---