

atomera

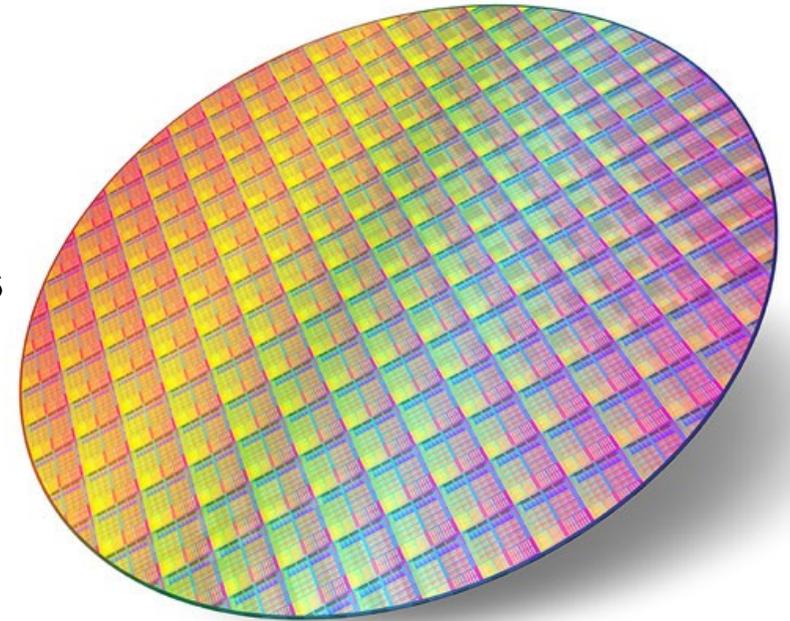
# Investor Presentation

August 2023

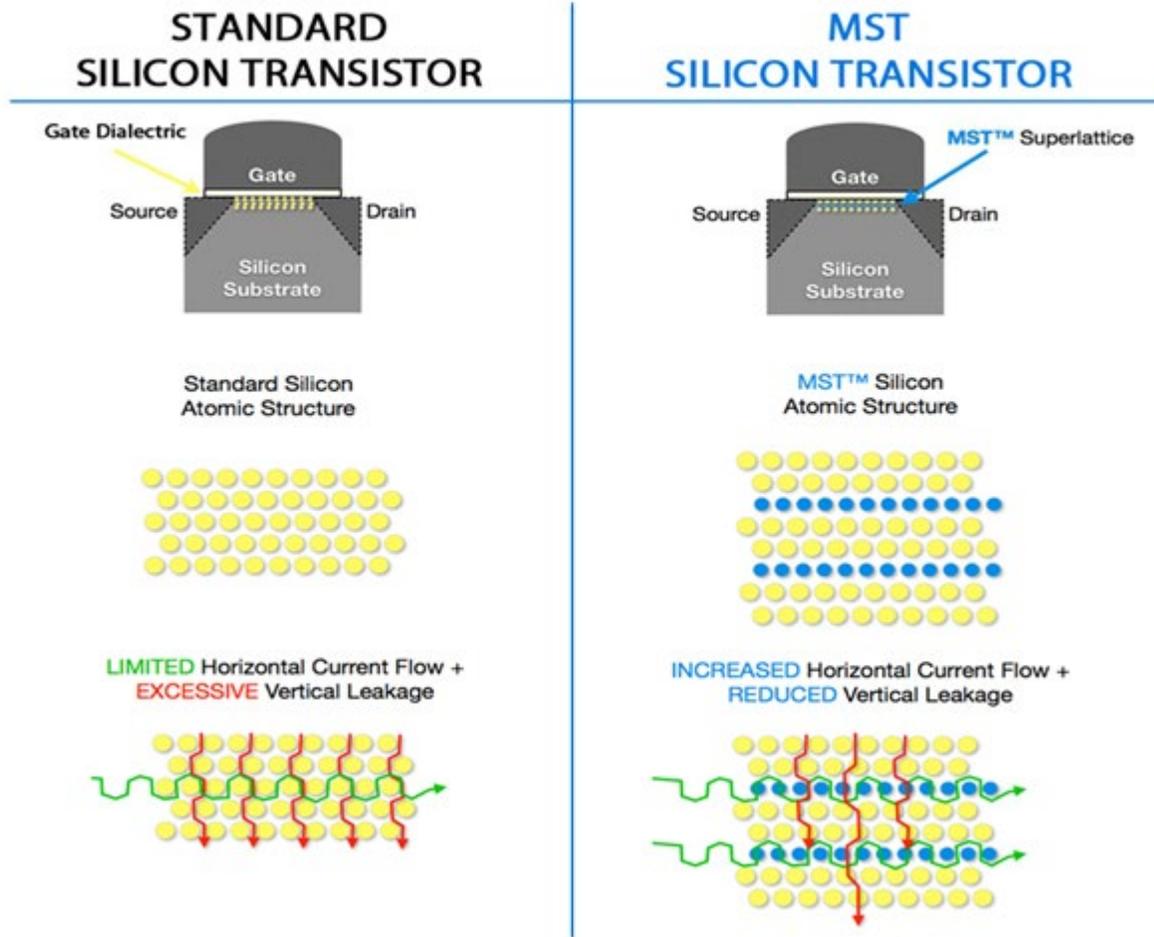
This presentation contains forward-looking statements concerning Atomera Incorporated (“Atomera,” the “Company,” “we,” “us,” and “our”). The words “believe,” “may,” “will,” “potentially,” “estimate,” “continue,” “anticipate,” “intend,” “could,” “would,” “project,” “plan,” “expect” and similar expressions that convey uncertainty of future events or outcomes are intended to identify forward-looking statements. These forward-looking statements are subject to a number of risks, uncertainties and assumptions, including those disclosed in the section “Risk Factors” included in our Annual Report on Form 10-K filed with the SEC on February 15, 2022 . In light of these risks, uncertainties and assumptions, the forward-looking events and circumstances discussed in this presentation may not occur and actual results could differ materially and adversely from those anticipated or implied in our forward-looking statements. You should not rely upon forward-looking statements as predictions of future events. Although we believe that the expectations reflected in our forward-looking statements are reasonable, we cannot guarantee that the future results, levels of activity, performance or events and circumstances described in the forward-looking statements will be achieved or occur.

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- ▶ **Mears Silicon Technology (MST<sup>®</sup>) is a thin film used to enhance semiconductors**
  - Results in higher performance, lower power, and lower costs for ICs
- ▶ **Capital-light IP and technology licensing business**
- ▶ **Engaged with 50% of world's top semiconductor makers**
- ▶ **Licenses with five companies including two JDA**
- ▶ **Strong team to commercialize technology**



## Potential Benefits



### ▶ Improved Efficiency

- Higher transistor performance
- Lower power consumption
- Better reliability

### ▶ Lower cost

- Reduced die size
- Improved yield
- Higher throughput

### ▶ Same benefits as a node shrink

# Target Customers & Partners



## Integrated Device Manufacturers



## Foundry



## Fabless



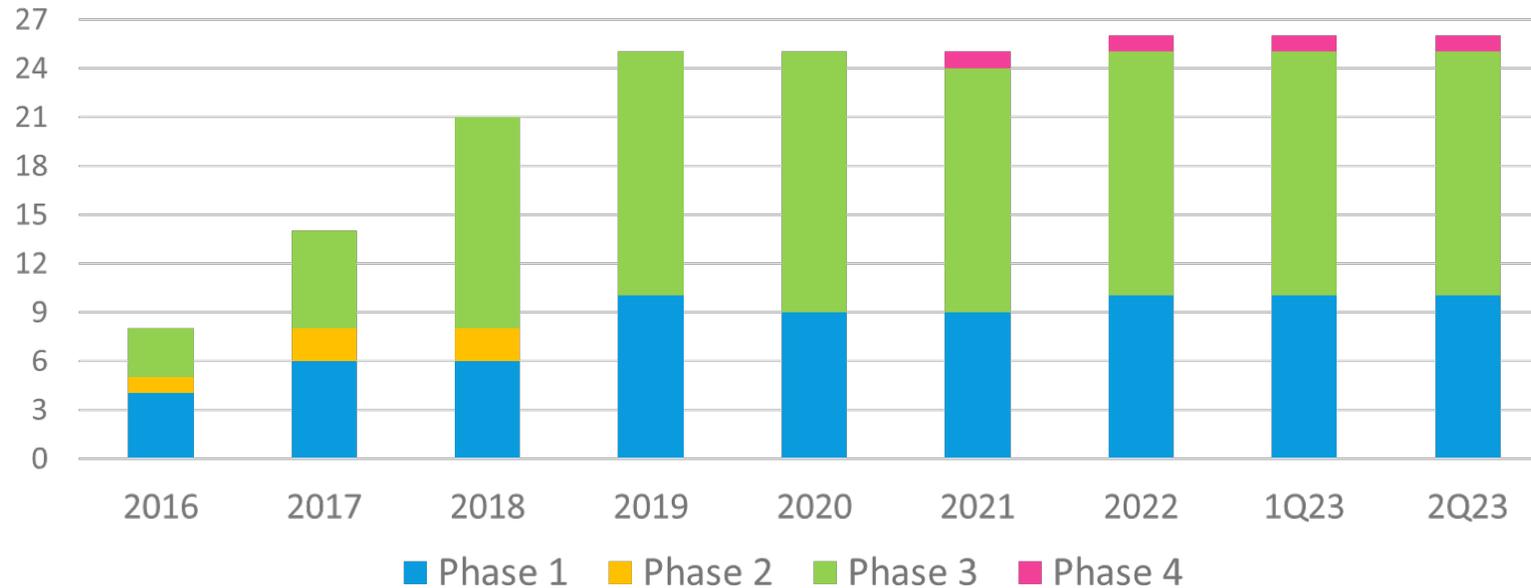
## Tool Suppliers (Partners)



# Customer Pipeline



Number of Customer Engagements

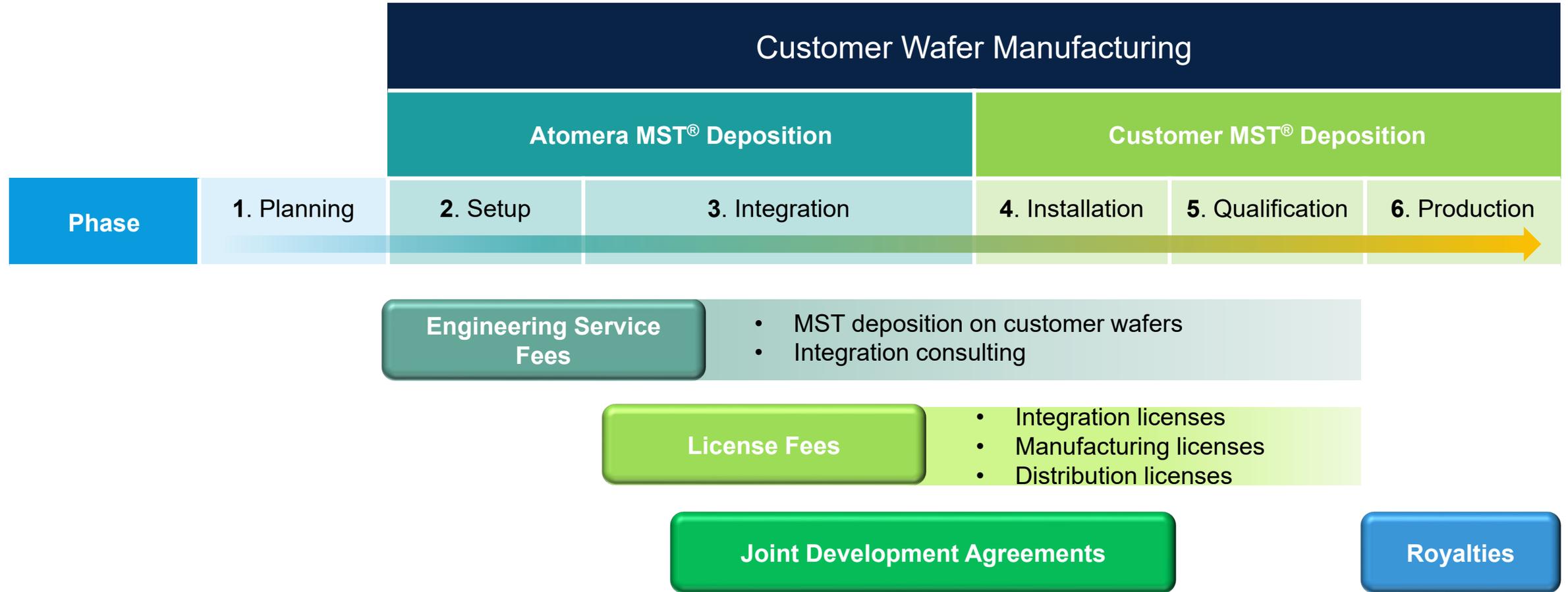


• 10 of the top 20 (IC Insights, McClean Report 2022)

^ End of year engagement count

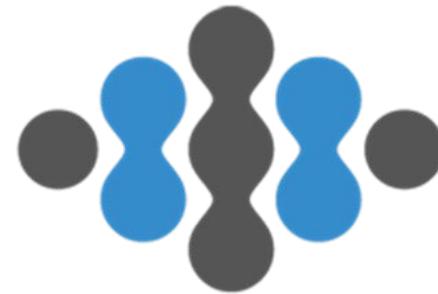
- 20 customers, 26 engagements
- Working with 50% of the world's top semiconductor makers\*

# Customer Engagement & Revenue Model



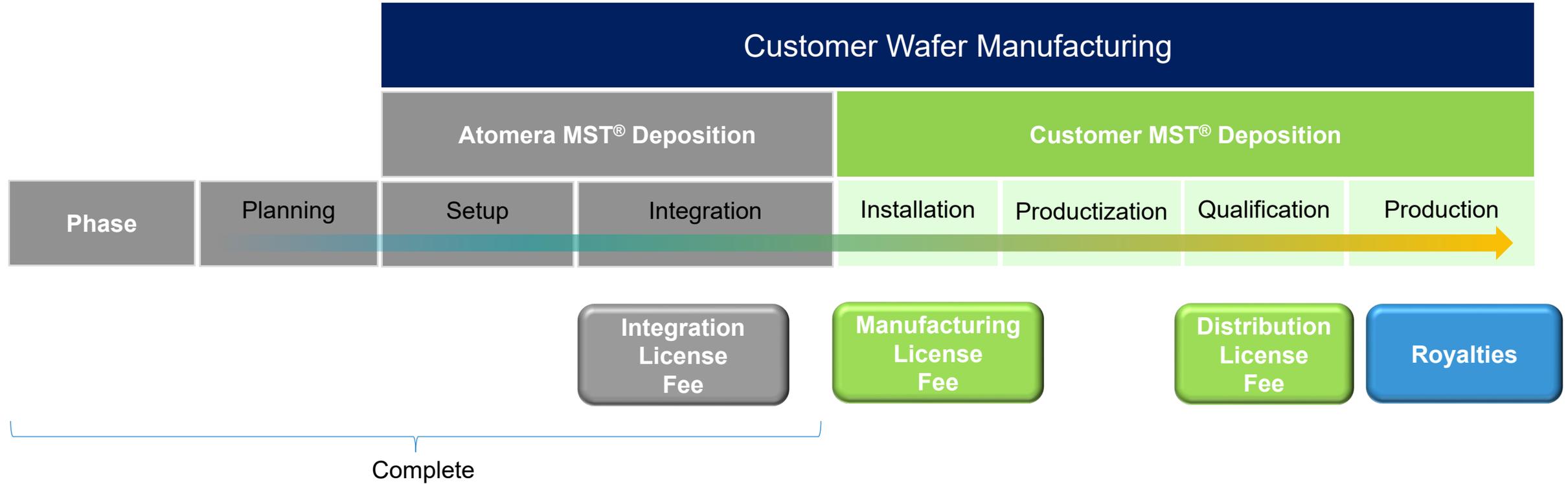


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# ST Path to Production



# MST Key Benefits Across Nodes

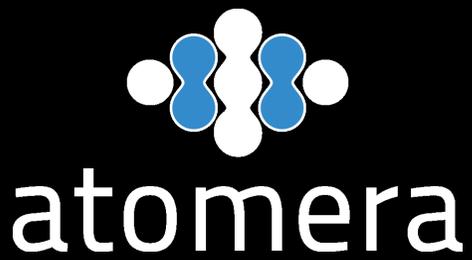


<b>Mobility</b>	8%	20%	25%	10%	15+%
<b>Dopant Engineering</b>	20%	15%	15%	15%	20%
<b>Reliability (TDDDB/BTI)</b>		25%	25%	25%	25%

← 180nm 130nm 90nm 65nm 40nm 28nm 22nm 16/14nm 10nm 7nm 5nm 2nm →

*These Benefits are ADDITIVE & COMPLEMENTARY to other enhancement technologies*

# MST technology focus areas



MST-SP

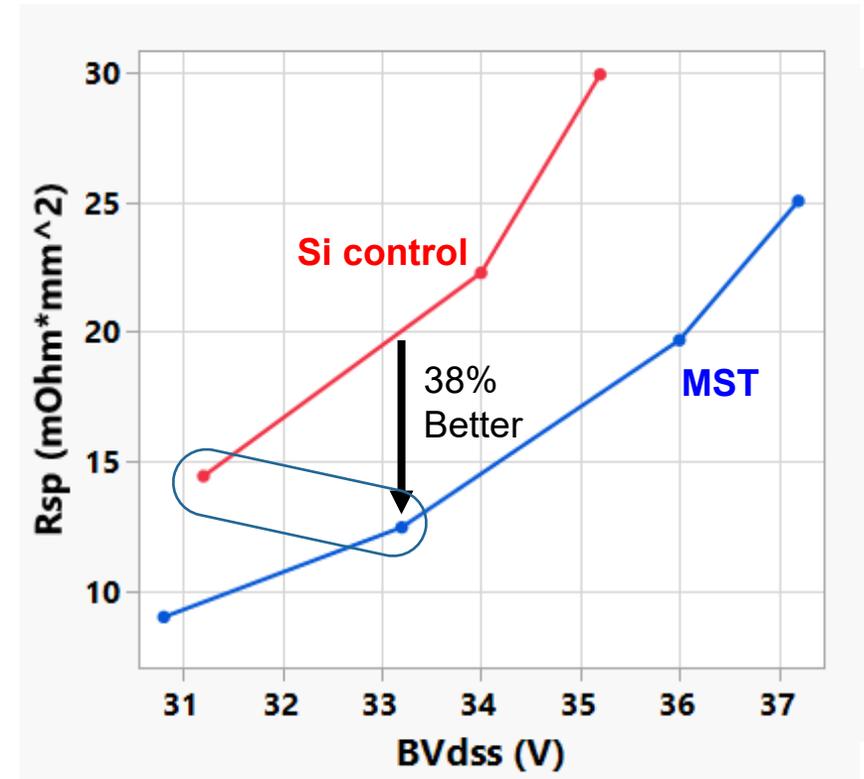
MST for  
RF-SOI

MST for  
Advanced  
Nodes



# MST-SPX targeting power devices

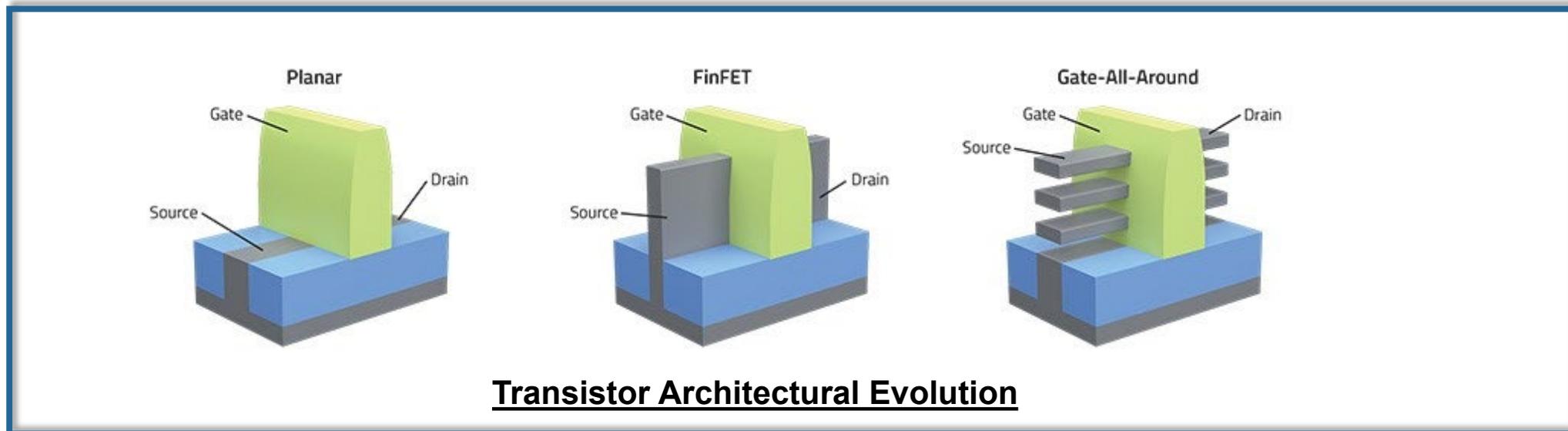
- ▶ **Targets higher voltage (5-40V) product area**
- ▶ **Strong customer demand for solutions**
- ▶ **MST brings significant improvement**
  - Early results showing gains in many areas
  - Allows manufacturers to shrink designs, cut product costs
- ▶ **Early stages of customer rollout**



$L_{\text{DEVICE}} = 1.84\mu\text{m}$

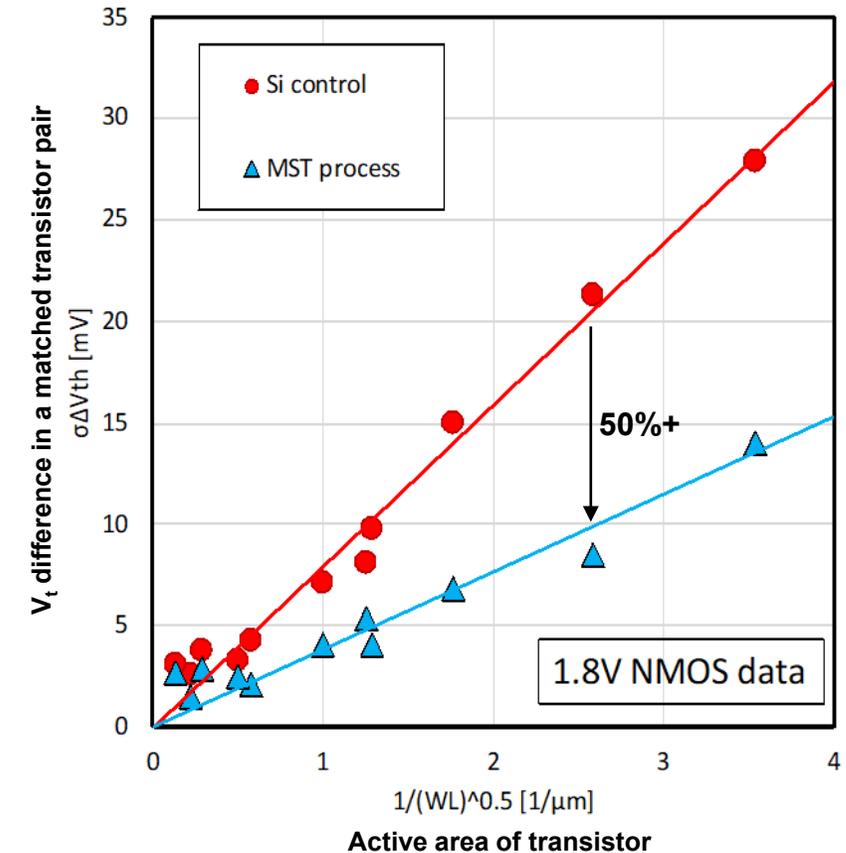
# MST: Solving GAA Transistor Challenges

- ▶ Blocks source/drain dopant diffusion
- ▶ Provides enhanced punch-through stop layer between source and drain
- ▶ Lowers contact resistance
- ▶ Reduces HKMG stack height
- ▶ Improves carrier mobility, gate leakage



# Variability reduction with MST

- ▶ **High variability between transistors is a significant issue**
  - A big driver of variability is Random Dopant Fluctuation (RDF)
  - Some transistors are designed larger to account for variability
  - This increases costs and limits the minimum achievable voltage and power
- ▶ **Advanced GAA transistor need solutions for RDF**
- ▶ **DRAM sense-amp variability is a major design constraint**
  - Sense-amp margin defines refresh interval and resulting power
  - Improving variability allows smaller sense-amp and reduced power
- ▶ **MST can minimize RDF and lower variability, critical in advanced nodes and memories**



# Royalty Opportunity



- ▶ ~410 wafer fabs operating worldwide
- ▶ Adoption of MST in one fab can make Atomera profitable from royalties alone
  - 2023 non-GAAP OPEX guidance is \$16.25M - \$16.75M

Example 1   Worldwide Average Fab	
Monthly Fab Capacity <sup>1</sup> (wafers/month)	46,240
Industry average wafer ASP - 2018	\$1,365
<b>Annual Revenue Potential<sup>2</sup></b>	<b>\$15.1M</b>
Annual Revenue at 50% of ramp <sup>2</sup>	\$7.6M

Example 2   Leading Foundry, 28nm Fab	
Monthly Fab Capacity (wafers/month)	80,000
Industry average 28nm wafer ASP	\$3,300
<b>Annual Revenue Potential<sup>2</sup></b>	<b>\$63M</b>
Annual Revenue at 50% of ramp <sup>2</sup>	\$31.7M

1. Represents wafers starts per month (200mm equiv) – 227.5M starts in 410 fabs

2. Assumes 2% royalty rate

Source: IC Insights Global Wafer Capacity 2021-2025 report, McClean Report 2021, 2022

# MST Customer Business Opportunity



## ► Foundry economics

	Wafer Price	GM%	GM\$ Increase	MST Royalty	Wafer Cost	
28nm HP wafer	\$ 3,300	45%	\$ -	\$ -	\$ 1,815	
28nm HP+ wafer	\$ 3,450	45%	\$ 68	\$ -		5% higher price for +15% performance boost
28nm HP wafer with MST	\$ 3,600	47.0%	\$ 208	\$ 72	\$ 1,907	30% performance boost=10% higher price (+ \$20 MST cost)
28nm HP wafer with MST	\$ 3,713	48.6%	\$ 318	\$ 74	\$ 1,909	25% die shrink=12.5% price increase (+ \$20 MST cost)

- **Gross margin increases by \$200-\$300 per wafer after foundry pays Atomera royalties**

## ► Fabless semiconductor economics

	Chip sales/ wafer	GM%	GM\$ Increase	Product ASP	Die/wafer	
28nm HP wafer	\$ 9,233	50%	\$ -	\$ 4.86	2,235	Baseline business for 30mm <sup>2</sup> chip
28nm HP wafer with MST	\$ 12,398	59%	\$ 3,165	\$ 4.86	3,001	Improved financials with 25% size reduction

- **Sales and profit both increase by over \$3000 per wafer for fabless manufacturer**

## ► Everyone in the value chain benefits from MST technology

# Financial Review



<u><i>Income Statement</i></u> <i>(\$ in thousands, except per-share data)</i>	<i>Three Months Ended</i>		
	<u>June 30, 2023</u>	<u>March 31, 2023</u>	<u>June 30, 2022</u>
<b>REVENUE</b>		\$ -	\$ -
Gross Profit		-	-
<b>OPERATING EXPENSES</b>			
Research & Development	3,192	3,036	2,433
General and Administration	1,775	1,742	1,667
Selling and Marketing	393	389	347
<b>TOTAL OPERATING EXPENSES</b>	<b>5,360</b>	<b>5,167</b>	<b>4,447</b>
OPERATING LOSS	(5,360)	(5,167)	(4,447)
Other Income (Expense)	208	148	(34)
<b>NET LOSS</b>	<b>\$ (5,152)</b>	<b>\$ (5,019)</b>	<b>\$ (4,481)</b>
Net Loss Per Share	\$ (0.21)	\$ (0.21)	\$ (0.20)
Weighted average shares outstanding	24,677	23,660	22,936
<b>ADJUSTED EBITDA (NON-GAAP)</b>	<b>\$ (4,310)</b>	<b>\$ (4,220)</b>	<b>\$ (3,569)</b>
ADJUSTED EBITDA PER SHARE	\$ (0.17)	\$ (0.18)	\$ (0.16)
<u><i>Balance Sheet Information</i></u>			
<b>Cash, equivalents &amp; ST investments</b>	<b>\$ 23,835</b>	<b>\$ 17,052</b>	<b>\$ 21,838</b>
Debt		-	-

# Summary



- ▶ High margin, recurring revenue financial model
- ▶ Strong technology, patent position, and balance sheet
- ▶ Traction with many top industry players and growing licensee base
- ▶ Ramping commercial license revenues



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Thank You