Investor Presentation

January 2021

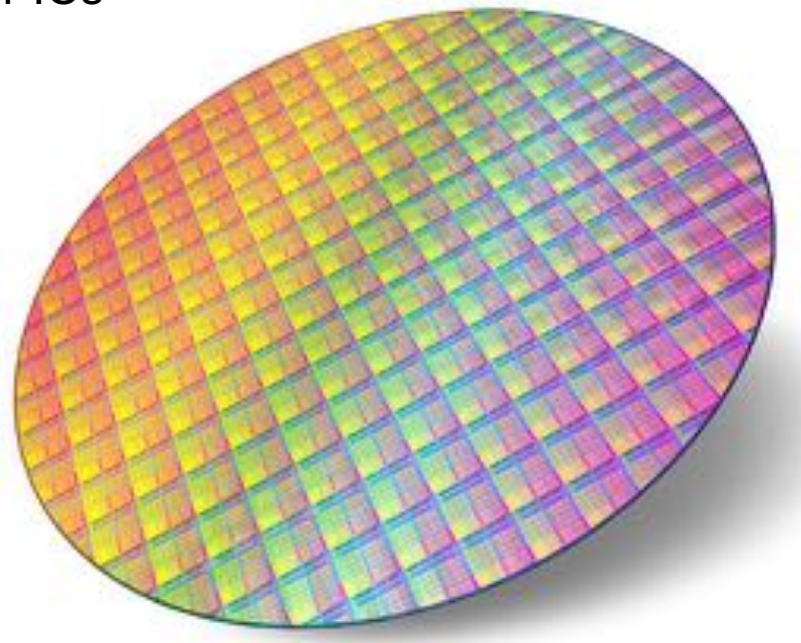
Safe Harbor

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 Prospectus Supplement filed pursuant to Rule 424(b)(5)with the SEC on September 2, 2020. 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.

This presentation contains only basic information concerning Atomera. The Company’s filings with the Securities Exchange Commission, including the Prospectus Supplement , include more information about factors that could affect the Company’s operating and financial results. We assume no obligation to update information contained in this presentation. Although this presentation may remain available on the Company's website or elsewhere, its continued availability does not indicate that we are reaffirming or confirming any of the information contained herein.

Investment Overview

- **Mears Silicon Technology (MST®) 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**
  - Robust and growing patent portfolio
- **Engaged with 50% of world's top semiconductor makers**
- **Licenses with four companies**
- **Strong team to commercialize technology**



A Better Way for Industry R&D

Industry Consortia

Little Control

Expensive & Inefficient

Equipment OEMs

No Longer Available

Tied to Equipment Sales

In House R&D

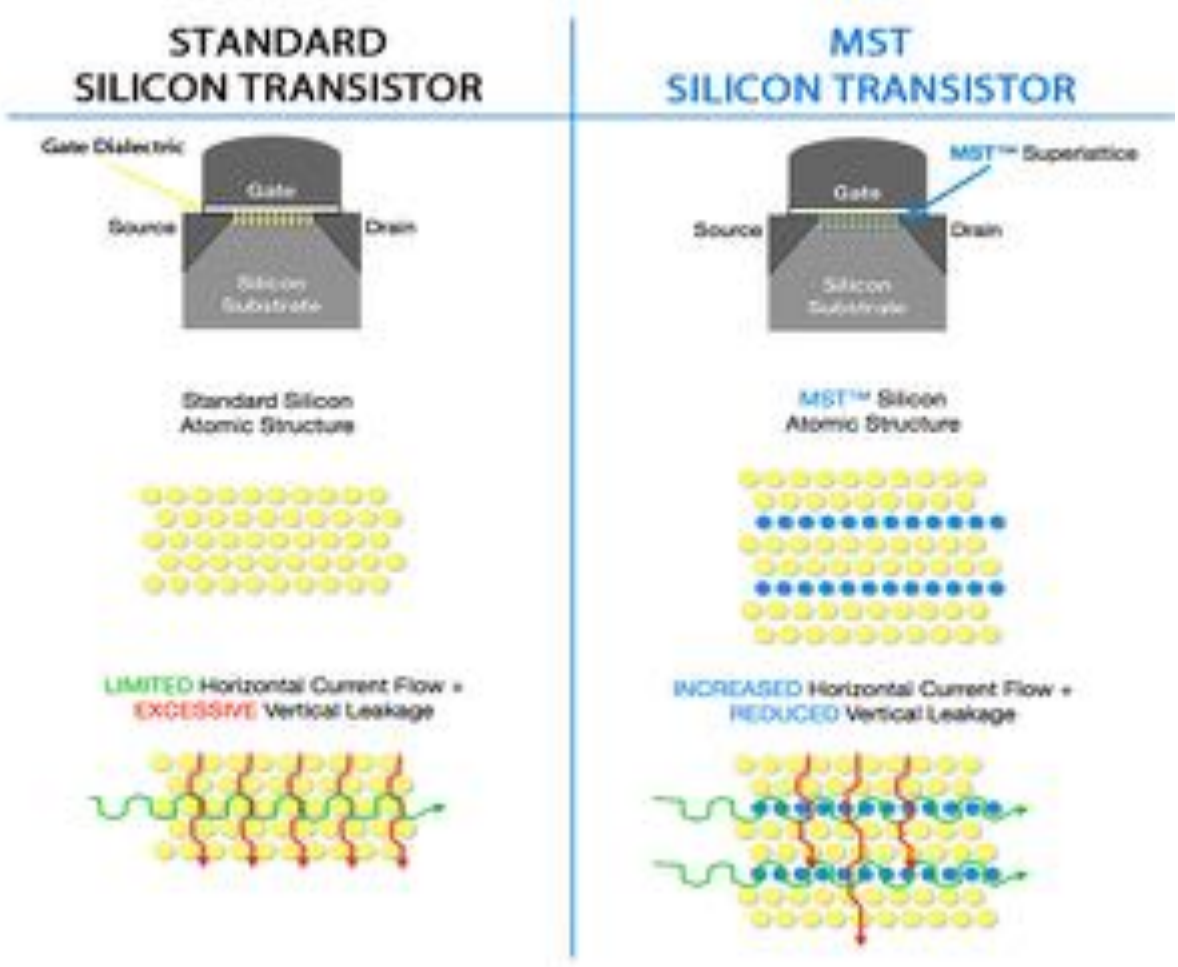
Large Scale, Long Term Investment

atomera

Targeted Innovation

Inexpensive & Low Risk

MST Technology

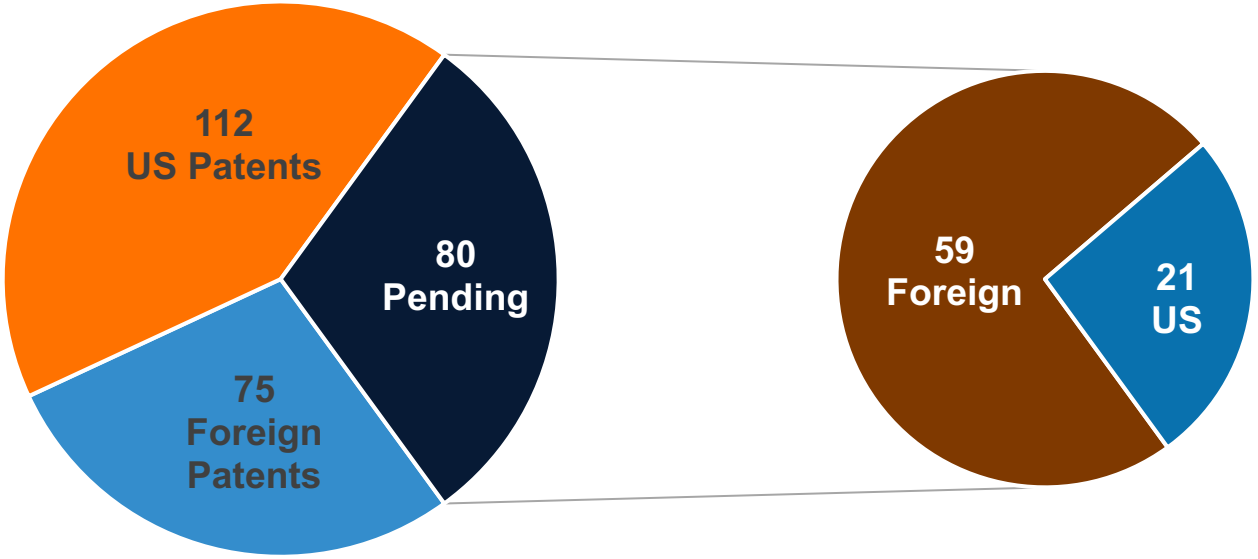


Potential Benefits

- **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**

Patent Portfolio

267 Patents Granted and Pending



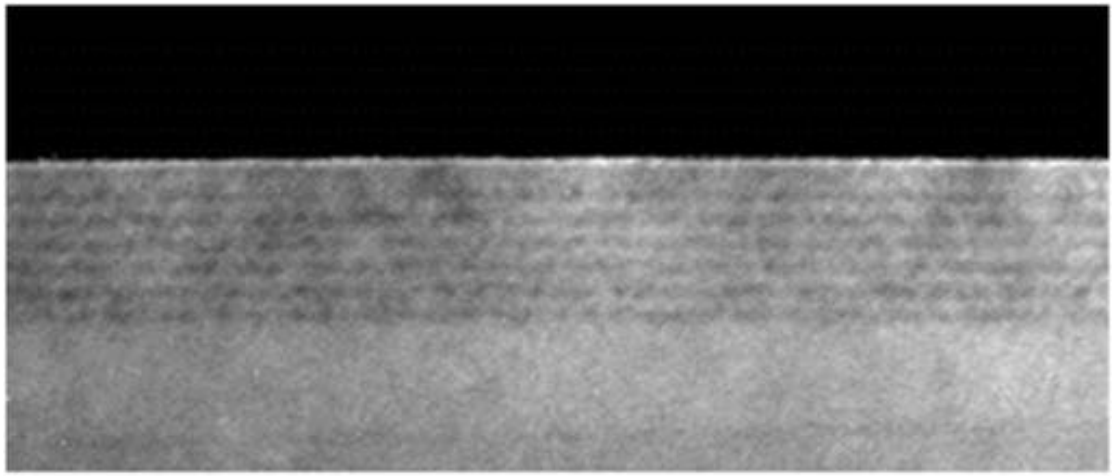
Core MST Method and Device

MST Enabled Devices/Architecture

Next-Gen Architectures using MST

Discoverable

These distinctive layers are visible on products using MST



Extensive know-how

Extends life and value of patents

Target Customers & Partners

Integrated Device Manufacturers

SAMSUNG, Micron, TOSHIBA, intel, Texas Instruments, ST, Infineon, ON, RENESAS, NXP, AsahiKASEI, SK hynix

Foundry

tsmc, GLOBAL FOUNDRIES, UMC, SMIC, HHGrace, DB HiTek, TOWERJAZZ, MagnaChip

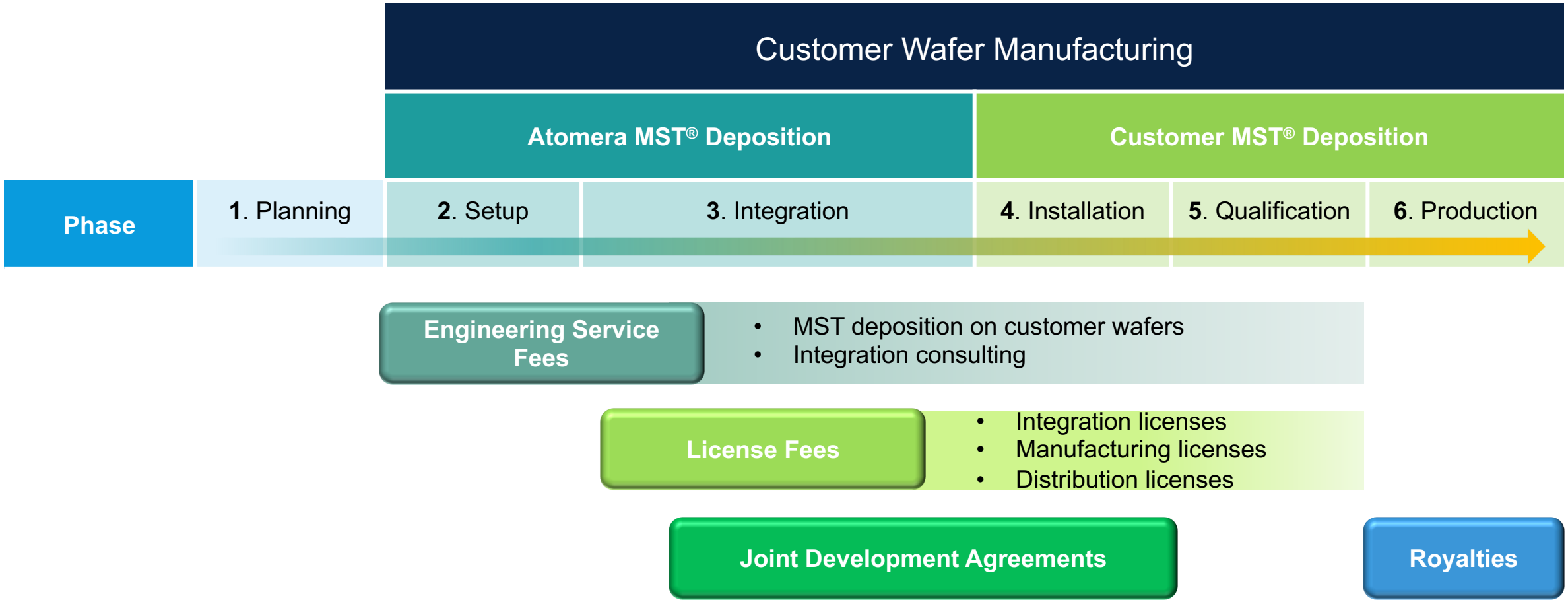
Fabless

BROADCOM, MARVELL, maxim integrated, MICROCHIP, SKYWORKS, QUALCOMM, XILINX, qorvo

Tool Suppliers (Partners)

ASM, APPLIED MATERIALS, KOKUSAI SEMICONDUCTOR EQUIPMENT CORPORATION, SYNOPSYS

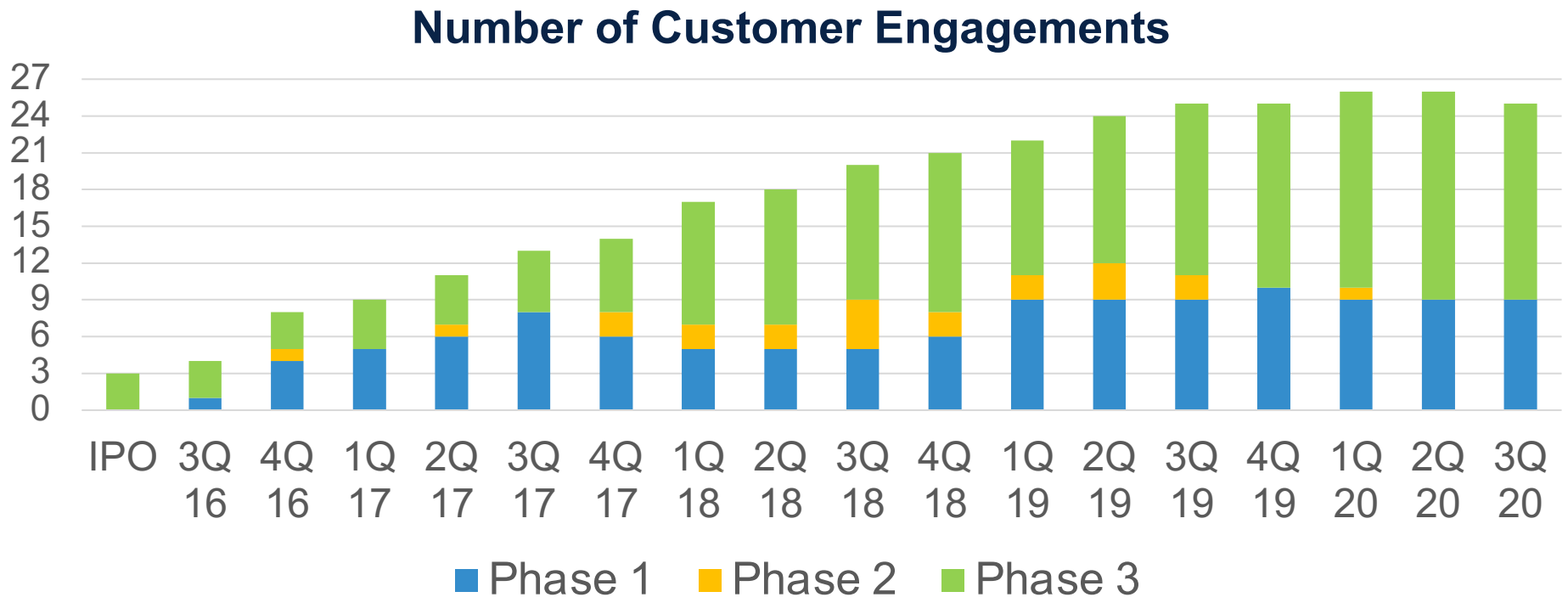
Customer Engagement & Revenue Model



Joint Development Agreements

- Targets large potential customers
  - Multiple production nodes
  - Multiple technology and product divisions
  - Designed to integrate both development, licensing components and manufacturing requirements
- First major agreement signed at end of 2020 with market leading semiconductor company

Customer Pipeline



- 19 customers, 25 engagements
- Working with 50% of the world's top semiconductor makers*

* At least 10 of the top 20 (IC Insights, McClean Report 2019)

Royalty Opportunity

- **~370 wafer fabs operating worldwide**
- **Adoption of MST in one fab can make Atomera profitable from royalties alone**
  - 2020 non-GAAP OPEX guidance is $12.00-12.25M

Example 1 | Worldwide Average Fab	
Monthly Fab Capacity[1] *(wafers/month)*	49,000
Industry average wafer ASP - 2018	$1,136
Annual Revenue Potential[2]	**$13M**
Annual Revenue at 50% of ramp[2]	$6.7M

Example 2 | Leading Foundry, 28nm Fab	
Monthly Fab Capacity *(wafers/month)*	80,000
Industry average 28nm wafer ASP	$3,000
Annual Revenue Potential[2]	**$58M**
Annual Revenue at 50% of ramp[2]	$29M

1. Represents wafers starts per month (200mm equiv) – 217.3M starts in 370 fabs
2. Assumes 2% royalty rate

Source: IC Insights Global Wafer Capacity 2019-2023 report, McClean Report 2019

MST Customer Business Opportunity

- **Standard industry fab wafer pricing, GM, and cost**
  - 15% performance improvement option raises price by $150

	Wafer selling Price	GM%	GM$ Increase over base	Fab wafer Cost*	
28nm HP wafer - base	$ 3,000	45%	$ -	$ 1,650	
28nm HP+ wafer	$ 3,150	45%	$ 68	$ 1,733	15% improvement in performance

- **MST provides a 30+% performance improvement to 28nm wafers**
  - Allows fabs to raise their price by $300

Atomera royalty		2%		$ 66	
28nm HP wafer with MST	$ 3,300	47.4%	$ 214	$ 1,736	30% improvement in performance

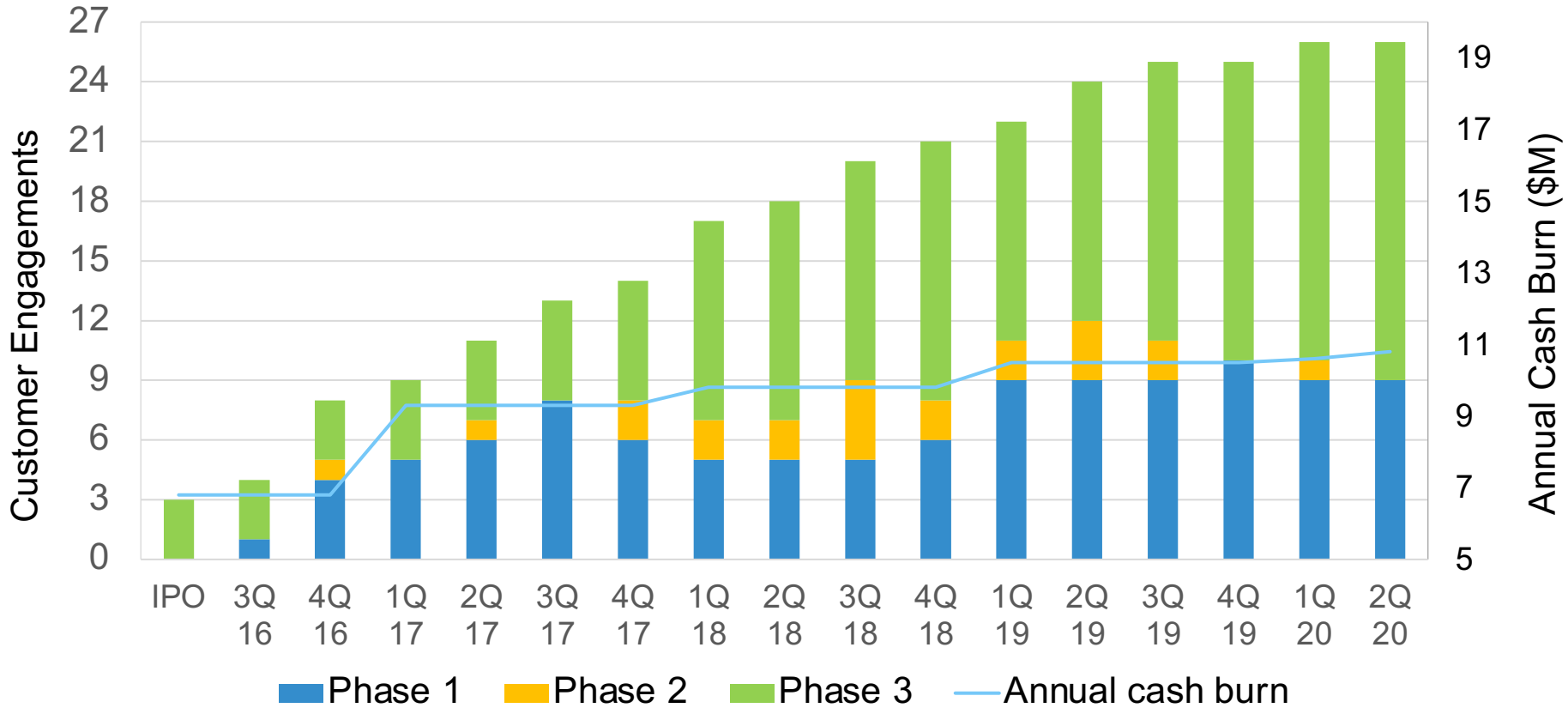
- **Instead of a performance boost, MST can be used to make a smaller die size**
  - Fabs typically increase their prices by half the total die shrink made available to their customers

Atomera royalty		2%		$ 68	
28nm HP wafer with MST	$ 3,375	48.5%	$ 288	$ 1,738	25% die size reduction, 12.5% price increase

- **Fabs make greater than $200 additional profit on each MST wafer and Atomera makes ~$67**

* Additional MST processing cost ~$20

Cash Efficient Growth



Financial Review

	FY 2019	Q1 '20	Q2 '20	Q3 '20	YTD 2020
GAAP Results					
Revenue	**$0.53M**	**$0.06M**	$ -	$ -	**$0.06M**
Gross Profit	$0.28M	$0.05M	$ -	$ -	$0.05M
Operating Expense					
R&D	$7.7	$2.1M	$2.1M	$2.0M	$6.2M
G&A	$5.2	$1.4M	$1.5M	$1.3M	$4.2M
S&M	$1.0	$0.2M	$0.2M	$0.2M	$0.6M
Total Operating Expense	**$13.9M**	**$3.7M**	**$3.8M**	**$3.6M**	**$11.1M**
Net Loss	($13.3M)	($3.6M)	($3.8M)	($3.6M)	$11.0M
Loss Per Share	*($0.84)*	*($0.22)*	*($0.21)*	*($0.19)*	*($0.62)*
Reconciliation between GAAP & Non-GAAP					
Net Loss (GAAP)	**($13.3M)**	**($3.6M)**	**($3.8M)**	**($3.6M)**	**($11.0M)**
Stock-Based Compensation	$2.9M	$0.6M	$0.8M	$0.8M	$2.2M
Warrant Modification	-	$0.1M	-	-	$0.1M
Other income (expense)	($0.3M)	-	-	-	-
Adjusted EBITDA (Non-GAAP)*	**($10.7M)**	**($2.9M)**	**($3.0M)**	**($2.7M)**	**($8.6M)**

Balance Sheet 09/30/20	
Cash	**$25.30M**
Debt	**-**
Shares Outstanding	**21.0M**

$25M ATM ($24.2M net) completed	
Included in 9/30 cash balance	**$8.5M**
Post-9/30 proceeds	**$15.7M**

** Adjusted EBITDA is a non-GAAP financial measure. A full reconciliation of GAAP and non-GAAP results is contained in our Q3 press release. Some totals reflect rounding.*

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

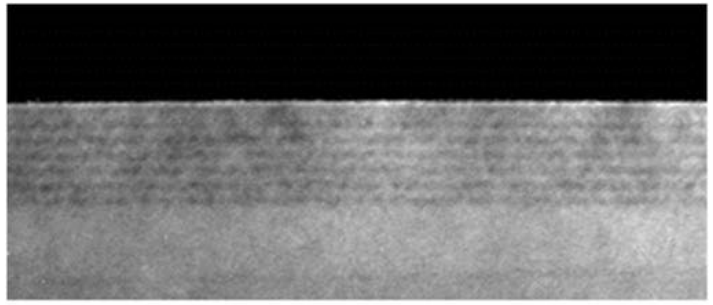
Thank You

Backup Slides

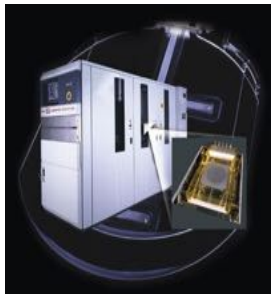
MST: Mears Silicon Technology

Quantum Engineered Silicon

Partial Monolayers of Oxygen in Silicon

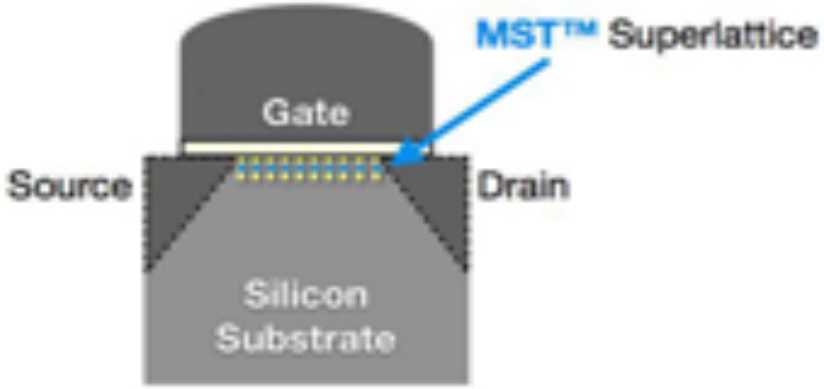


Supported by Major Semiconductor Tool Suppliers

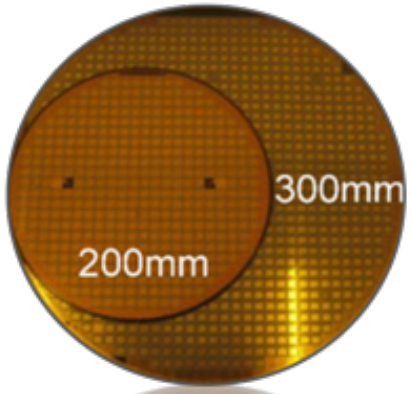


ASM KOKUSAI SEMICONDUCTOR EQUIPMENT CORPORATION APPLIED MATERIALS

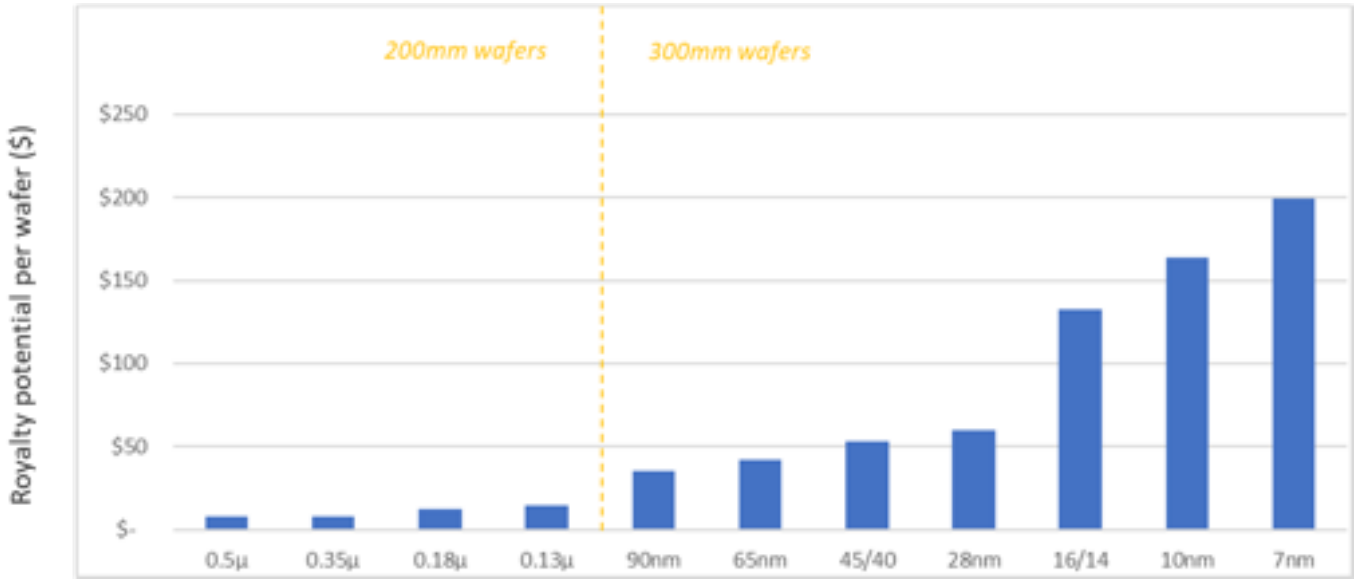
MST Enhanced Transistors



300mm Epi Tool



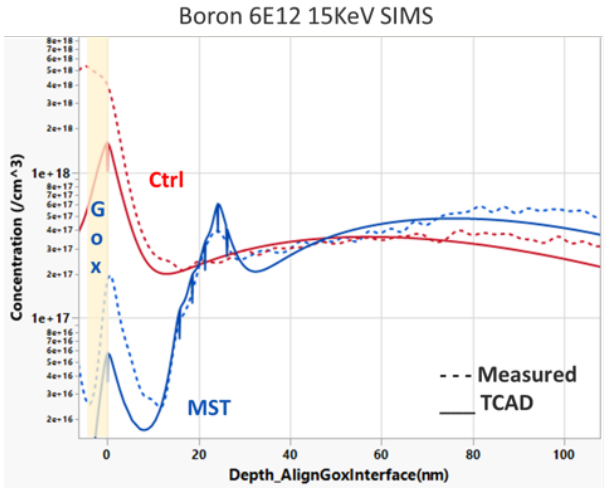
300mm Epi Deposition Tool

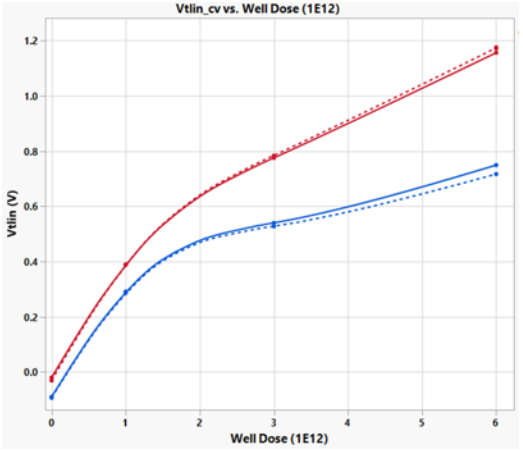


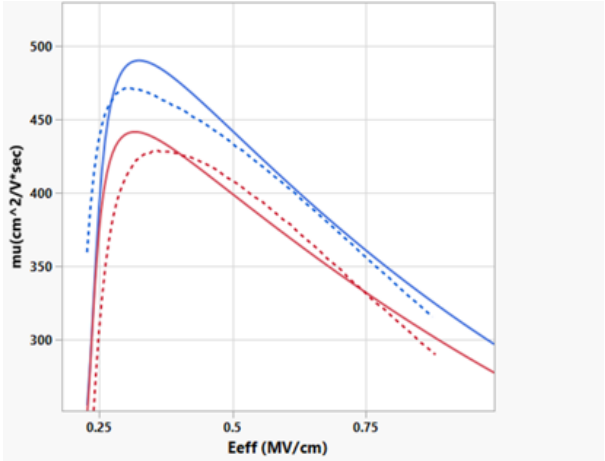
Source: The McClean Report - 2019

Atomera MSTcad™ Progress

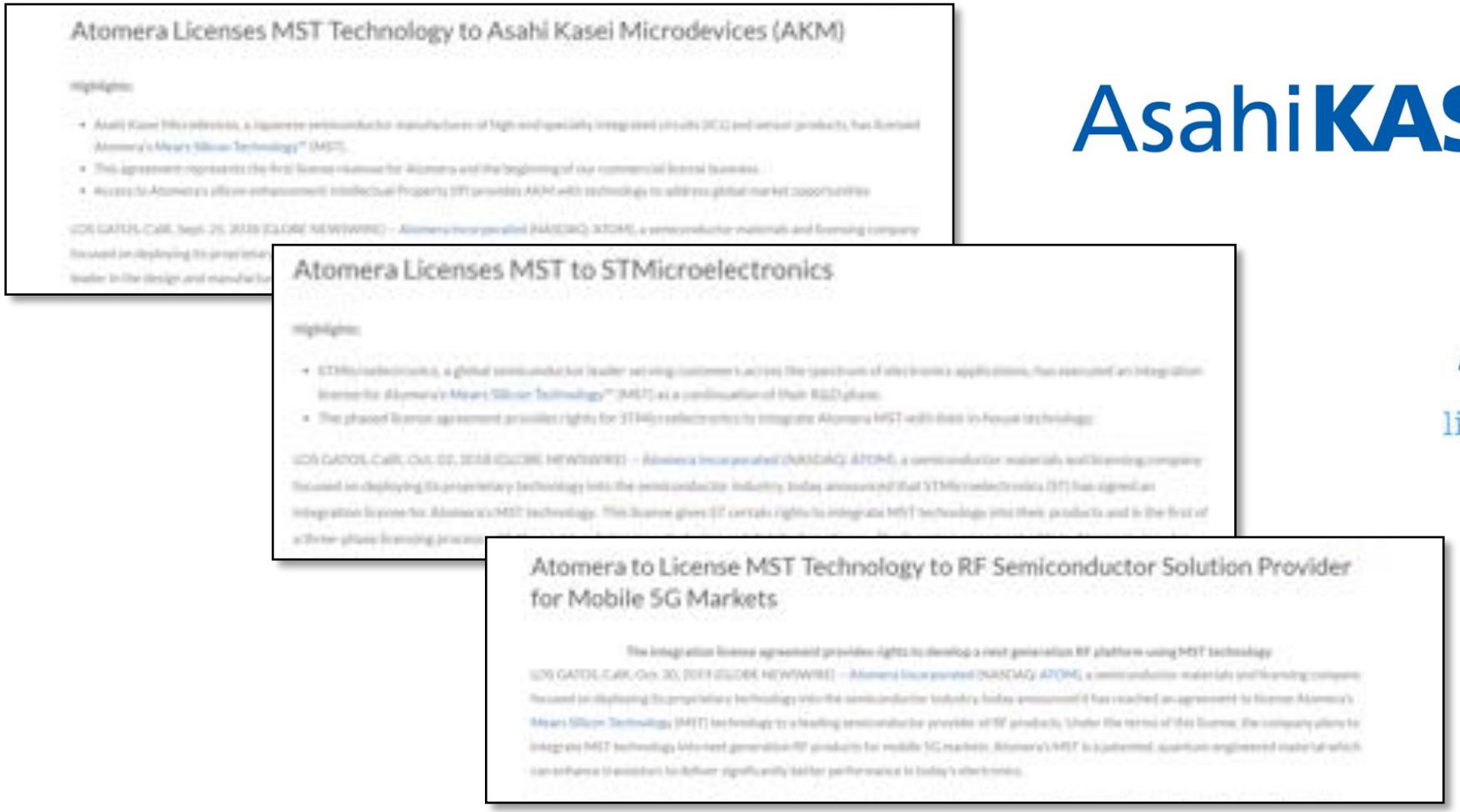
- Leading semiconductor companies use TCAD
- MST is modelled with a TCAD add-on called MSTcad
- These plots show silicon verification of MSTcad simulations
- Enables good electrical match-up for 5V NMOS and MST SP
- Should speed time to successful results with customers







Atomera Licensees



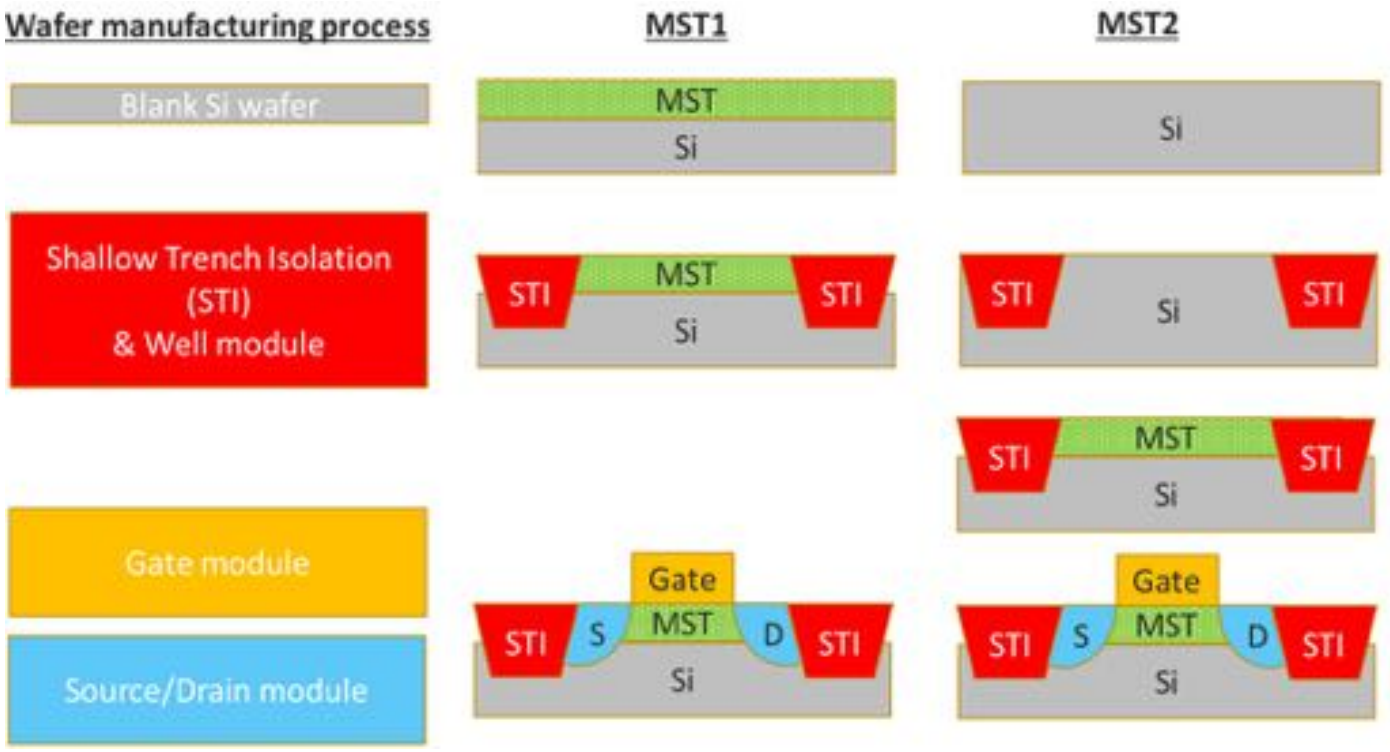
AsahiKASEI

life.augmented

Large fabless RF semiconductor company

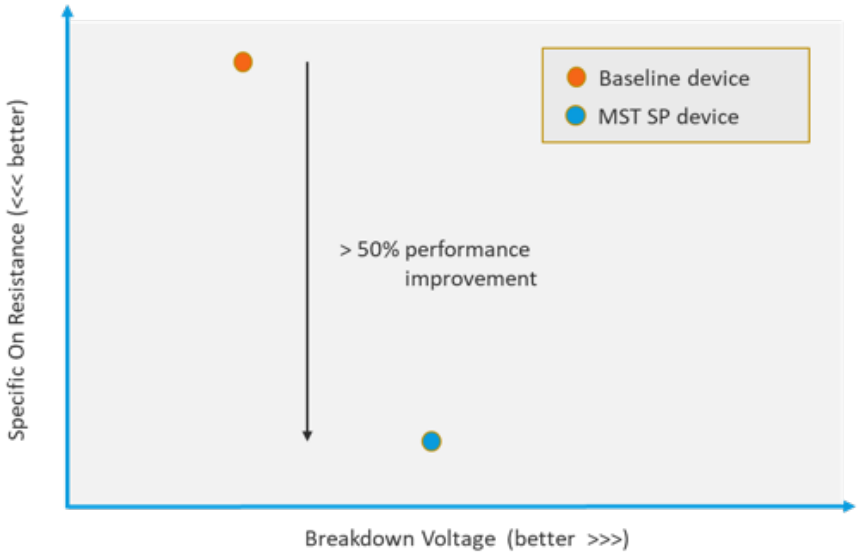
MST1 vs MST2

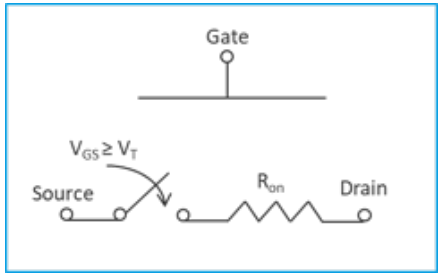
- **MST1**
  - Blanket technology
  - Easy to integrate
  - Deposited at beginning of mfg process
  - Degraded by high heat in STI/Well module
  - Faster time to market for low heat processes
  - Used for FinFET, RFSOI, newer process nodes
- **MST2**
  - Selective technology
    - Integrated after STI/Well so avoids highest heat
  - More flexible to apply to selected areas only
  - Used for 5V, Analog, older process nodes



5V Analog Breakthrough

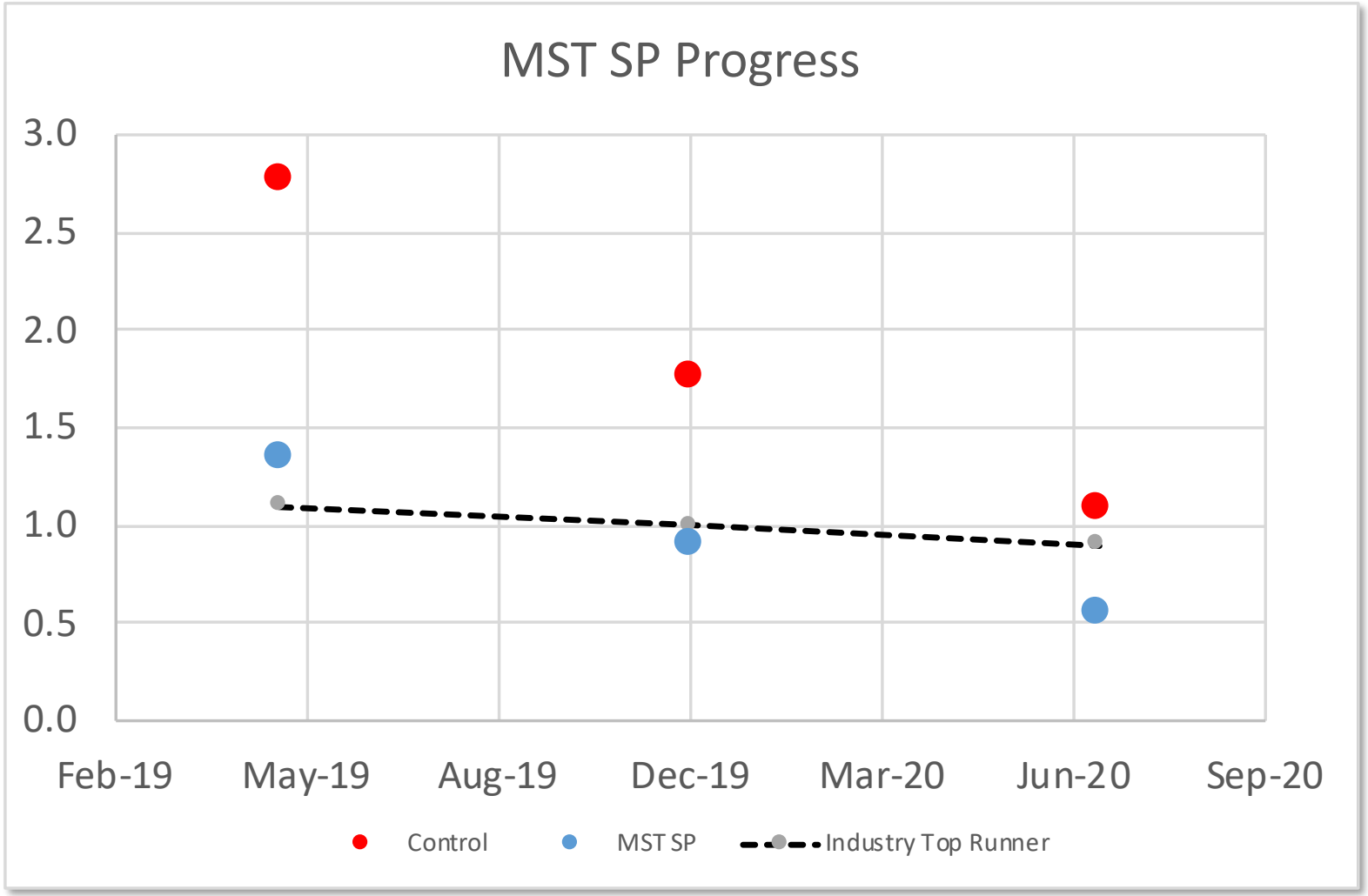
- **3. Breakthrough performance achieved on 5V analog products**
- **Large segment of the overall analog market**
- **Atomera has targeted ~20% improvement on 5V devices**
- **In April Atomera demonstrated a 50%+ improvement**
  - Using MST-SP technology
  - Relatively fast and easy to implement
- **Expected to give many business advantages**
  - Time to license, accelerated time to royalty, negotiating leverage
  - Applicable to even more markets
- **Market size: ~$33B, or $660M in royalties**





MST-SP Progress

R_{SP} ($m\Omega$-mm^2)



MST Matching Performance

- **Transistor mismatch is an industry problem**
- **Certain circuit designs benefit from mismatch reduction**
  - A-D convertors
  - SRAM
  - Flash
  - DRAM sense amplifiers
- **MST can reduce mismatch by more than 50%**
- **Details available at Atomera's website**
  - blog.atomera.com