



# REVASUM

Investor Presentation  
May 2021

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Although Revasum believes that these measures provide useful information about the financial performance of Revasum, they should be considered as supplements to the income statement measures that have been presented in accordance with the Australia Accounting Standards and IFRS and not as a replacement for them.

## Financial data

All dollar values are in US dollars (US\$) unless as otherwise presented.

# Agenda

- [1] Highlights of 2020 & Recent Updates
- [2] Industry & Market Update
- [3] Product Overview
- [4] Financial Update
- [5] Q&A

# REVASUM

Revasum designs & manufactures capital equipment used in the semiconductor device manufacturing process for the global semiconductor industry, strategically targeting Silicon Carbide (SiC) and wafer sizes  $\leq 200\text{mm}$ .

The Company has leveraged its significant expertise and intellectual property portfolio to develop the new flagship 6EZ Silicon Carbide Polisher, which, alongside the 7AF-HMG Silicon Carbide Grinder, provides Revasum's customers with an optimized, fully automated single-wafer grind and polish toolset. The solution is configurable for SiC wafers 200mm and below. The Company supports its customers with a full suite of spares, service, and engineering offerings.

	REVASUM
ASX Ticker	RVS
Total CDIs listed on the ASX, assuming all common stock held as CDIs	105,625,861
Current CDI Price	AU\$0.30
Market Capitalization	AU\$28.51M

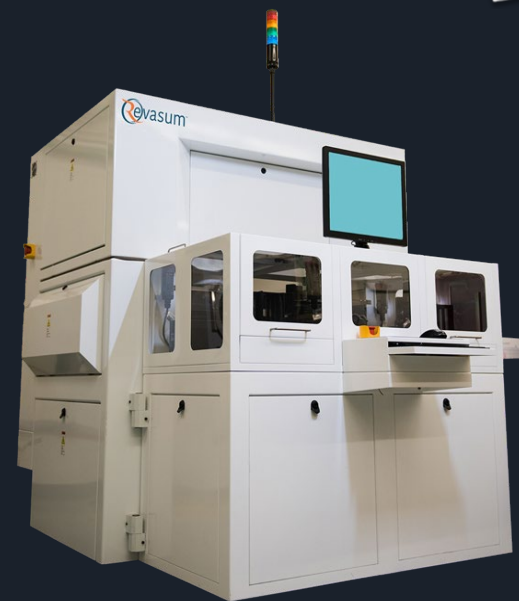
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## 6EZ Polisher



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## 7AF-HMG Grinder



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HIGHLIGHTS OF 2020 &  
RECENT UPDATES

# Highlights of 2020

## 6EZ Silicon Carbide Polisher shipped for Customer Evaluation

- FY20 strategic focus on bringing its new flagship 6EZ Silicon Carbide (SiC) Wafer Polisher (“6EZ”) to market
- 6EZ shipped to a major global semiconductor wafer manufacturer in the United States in late November 2020 for an initial 6-month evaluation
- Evaluation is progressing well & we have completed many more demos for other customers over the last 3 months. We are excited by the level of engagement.

## Improved Performance in 2H20 with revenue growth, along with margin & EBITDA improvements

- 37% Revenue increase in 2H20 to US\$8.9M
- SiC Equipment Revenue of US\$6.2M (2019: US\$3.3M) – increase of 87% Y/Y
- FY20 Gross Margin up to 31.8% (FY19: 11.2%)
- Driven by move to domestic vendors resulting in lower export duties & utilization of slow-moving inventories
- 2H20 EBITDA Loss of only US\$0.1M driven by improvement in gross margins & aggressive reduction in discretionary spend

## Ongoing investments in technology

- Key enhancement developed for 7AF-HMG is the Recipe Controlled Head Angle (“RCHA”)
- Enables repeatable machine control of the critical alignment between grind wheel and wafer.

# Recent Updates

## Free Cash Inflows for Q1 2021



- Operating cash inflows of US\$145K for Q121
- Free cash inflows of US\$60K for Q121
- Result of deposits taken for 6 equipment orders during the quarter

## Executive Management Team Updates



- Rebecca Shooter-Dodd promoted to Chief Financial & Operating Officer
- Bill Kalenian promoted to Chief Technology Officer
- Chris Sloan hired as VP of Worldwide Sales & Marketing

## Successful AU\$7.9M (US\$6.1M) Equity Raise



- Equity raise of US\$6.1M completed in February of 2021
- Proceeds will be used to bring the 6EZ to market and for working capital
- Put the Company in a strong position to take advantage of a growing market

## Strong Equipment Backlog



- Equipment backlog of US\$4.4M as of 19 May 2021
- Comprises of orders for both the 6DZ Silicon Polisher and the 7AF-HMG Silicon Carbide Grinder

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INDUSTRY & MARKET UPDATE



# SiC Semiconductors vs. Si Semiconductors



## HIGHER VOLTAGES

SiC can be used to enable smaller devices with low resistive losses. **Reducing complexity, cost & reliability.**



## HIGHER TEMPERATURE

Can operate well over 400 degrees centigrade temperature (vs. Si at 150 degrees centigrade). **Reducing cost & size.**

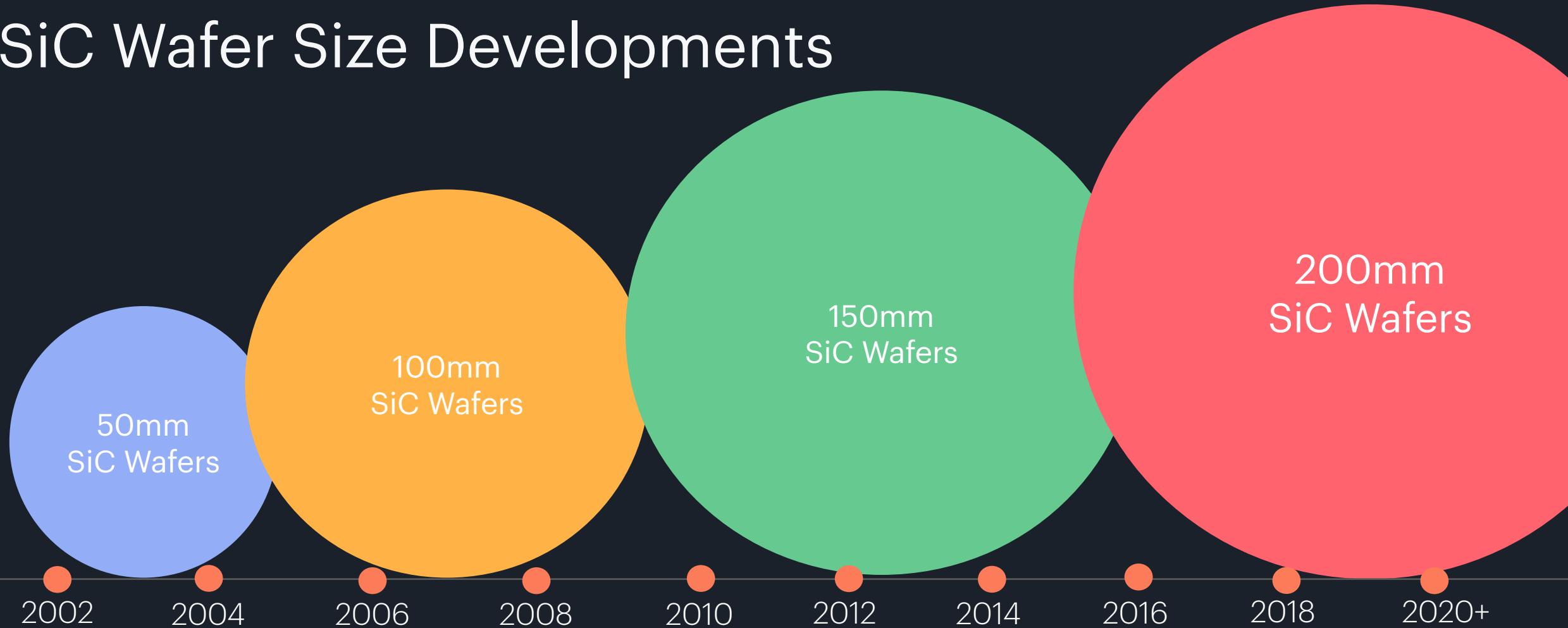


## HIGHER ENERGY BAND GAP

Higher energy band gap than Si makes it more robust against heat, radiation & electromagnetic fields. **This makes it ideal for sensor & military applications.**



# SiC Wafer Size Developments



## Advantages of large diameter substrates

- Large diameter substrate fabrication cost (per unit) is reduced significantly
- Large diameter wafer availability has helped to move SiC based devices from niche to mainstream
- Currently only Cree, II-VI & SiCrystal have demonstrated 200mm SiC wafers

# SiC for High-Growth End Markets



## ELECTRIC VEHICLES

SiC REDUCES CHARGING TIME FOR EVs AND INCREASED VEHICLE RANGE FOR A GIVEN BATTERY SIZE COMPARED TO Si-BASED



## RF & 5G EQUIPMENT

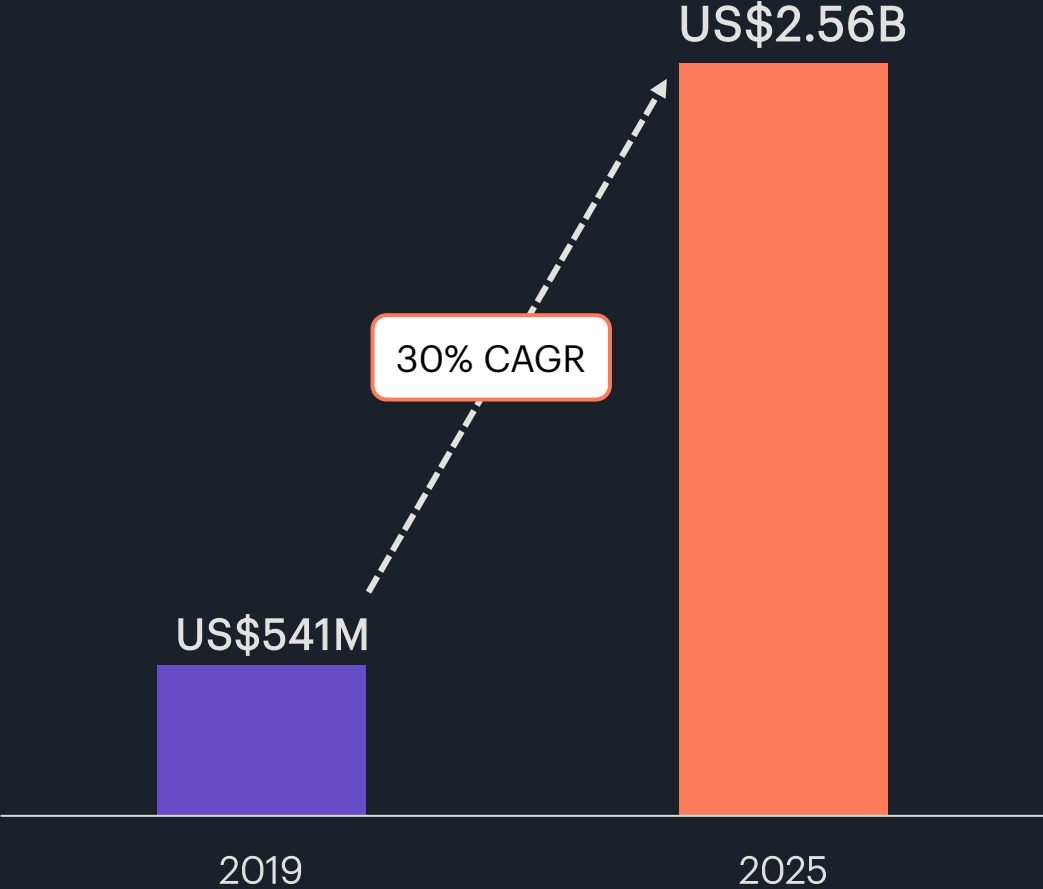
SiC HAS SUPERIOR ELECTRON MOBILITY AND THERMAL CONDUCTIVITY



## SOLAR INVERTERS

SiC BOOSTS EFFICIENCY & YIELD

## Worldwide SiC Device Market SAM



Source: YOLE Power SiC Market & Technology Report 2020

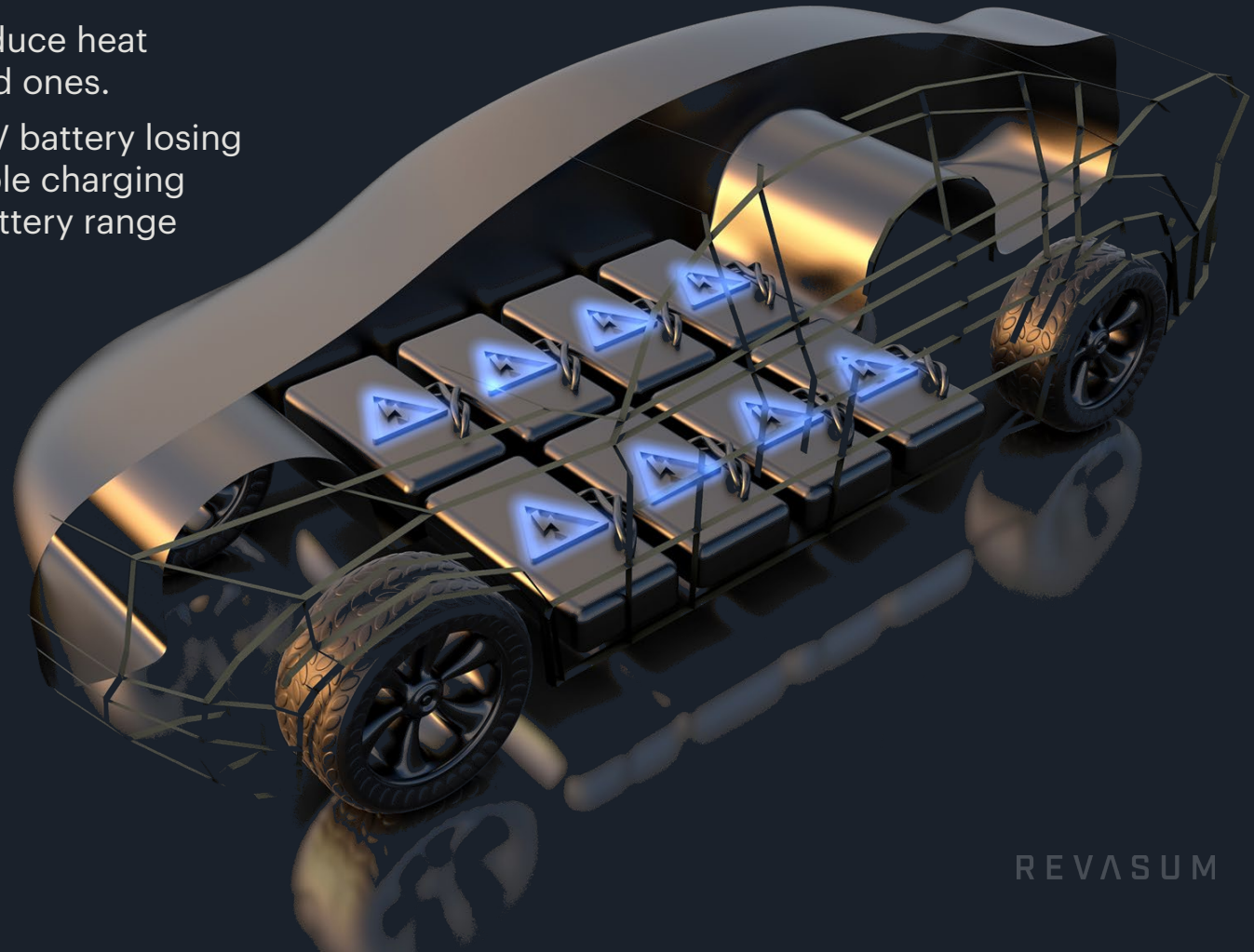
# SiC in Electric Vehicles

## SiC TECHNOLOGY SIGNIFICANTLY ENHANCES EV PERFORMANCE

- SiC-based power semis can drive lower energy losses, reduce heat dissipation and operate at higher temperatures vs Si-based ones.
- SiC products address driver 'Range Anxiety' – fear of an EV battery losing power before the driver reaches their destination or suitable charging point, with SiC delivering an estimated 20% increase in battery range compared to Si.

## SiC – THE TECHNOLOGY OF CHOICE FOR CHARGING BOTH ON & OFF THE CAR

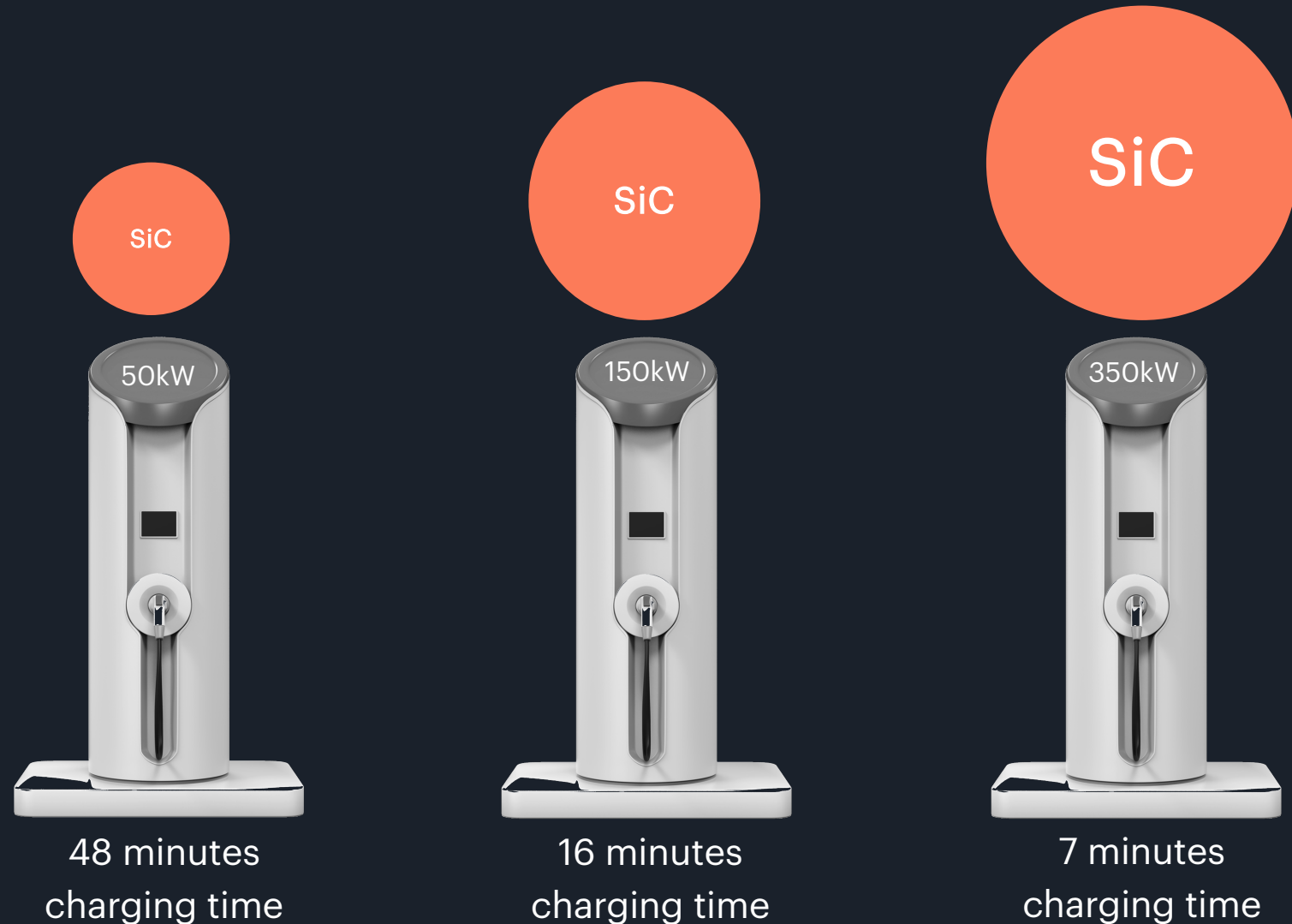
- SiC creates lower-cost, energy-efficient fast chargers
- High power conversion capabilities
- Faster switching speeds
- Improved thermal performance
- Reduces the size of battery needed



# SiC for EV Charging Infrastructure

## SiC is the material of choice for fast-charging stations

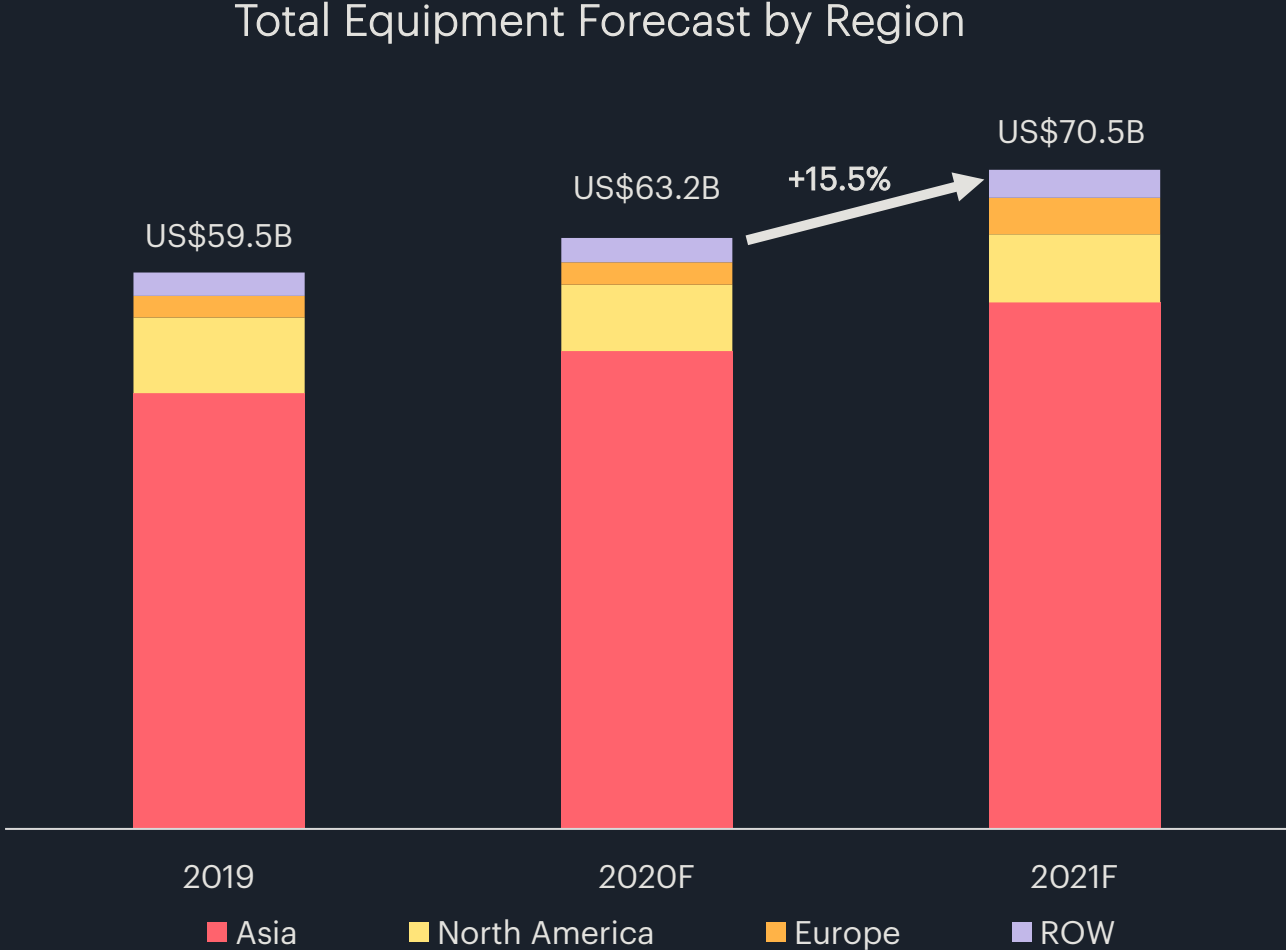
- SiC content per charger varies based on charger capacity
- The higher the electric charging power, the higher the interest in SiC deployment
- In fast charging the trend is to build units with higher power to save space
- SiC considered an enabler of device downsizing



# Semiconductor Capital Equipment Market Outlook

## GROWTH IN WAFER MARKET DRIVING SEMICONDUCTOR CAPITAL EQUIPMENT MARKET

- Market outlook promising, driven by growth in the wafer market
- Forecasted 15.5% increase in total equipment market in FY21



Source: SEMI July 2020, Equipment Market Data Subscription

# Significant Investment in SiC across the Industry



## Infineon increases supply security for silicon carbide by expanding the supplier base

May 6, 2021 | Business & Financial Press



Munich, Germany – 6 May 2021 – Infineon Technologies AG (FSE: IFX / OTCQX: IFNNY) has concluded a supply contract with the Japanese wafer manufacturer Showa Denko K.K. for an extensive range of silicon carbide material (SiC) including epitaxy. The German semiconductor manufacturer has thus secured more base material for the growing demand for SiC-based products. SiC enables highly efficient and robust power semiconductors that are used in particular in the fields of photovoltaic, industrial power supply, and charging infrastructure for electric vehicles.

ON Semiconductor®



## ON Semiconductor Announces New Generations of SUPERFET MOSFETs and SiC Diodes at PCIM Europe 2021

New products deliver higher efficiency for power applications

PHOENIX, Ariz. – May 4, 2021 – ON Semiconductor (Nasdaq:ON), driving energy efficient innovations, will be introducing new Super Junction (SJ) MOSFETs and SiC diodes as part of its activities during the 2021 PCIM Europe Digital Event commencing today. Efficiency and reliability are increasing important in power applications, not least so manufacturers can meet more stringent international standards. The 650 V SUPERFET® III FAST SJ MOSFETs deliver better switching performance than other SJ MOSFETs on the market, with improved efficiency and higher system reliability. These features are in high demand in fast-growing markets, including 5G, electric vehicle (EV) charging stations, telecoms and server sectors.

ON Semiconductor will also be introducing automotive AECQ101 and industrial grade qualified next generation 1200 V SiC diodes, ideal for high power applications such as EV charging stations and solar inverters, UPS, electric vehicles (EV) on-board chargers (OBC), and EV DC-DC Converters. SiC diodes offer significant advantages over silicon solutions, including higher reliability, lower EMI and simpler cooling requirements. The new design improves on the first generation SiC diodes thanks to a smaller die size and lower capacitance. The NVD5H20120C, NVD5H20120C, NVD5H50120C, and NVD5H50120C deliver a lower forward voltage drop and a 4x increase in rated current, with a higher rate of change (di/dt) of 3500 A/μs. The smaller die size also returns a 20% lower thermal resistance in an F2 package.



## ROHM Completes Construction of a New Environmentally Friendly Building at its Apollo Chikugo to Expand Production Capacity of SiC Power Devices

Jan 18<sup>th</sup>, 2021

ROHM has recently held an opening ceremony announcing the completion of a new building at ROHM Apollo's Chikugo plant started in February 2019 to enhance the production capacity of SiC power devices.

The new building is a state-of-the-art environmentally friendly factory that introduces a number of energy-saving technologies to its production facilities, with 100% of its electricity coming from renewable energy sources.

In addition, we have strengthened our BCM (Business Continuity Management) system by introducing various disaster countermeasures. And from January 2021, we will begin installing production equipment and build a manufacturing system that can meet the medium- to long-term increases in demand for SiC power devices. ROHM, which has been mass producing SiC power devices including SiC SBDs and MOSFETs since 2010, continues to lead the industry in technological development, such as by introducing the industry's first full SiC power modules and SiC trench MOSFETs. At the same time, boasting an integrated production system, ROHM is working to improve production efficiency by increasing wafer diameter and utilizing the latest equipment while also reducing the environmental impact of manufacturing.

In addition to this new building, SiCrystal GmbH, a ROHM Group company that manufactures SiC wafers, is scheduled to start operating with 100% renewable energy from the next fiscal year, reducing CO2 emissions from purchased power at the plant to zero. As a result, all major production processes for SiC wafers will use environmentally friendly renewable energy.



## Expanding Capacity for Silicon Carbide



RENDERING OF THE MOHAWK VALLEY FAB CURRENTLY UNDER CONSTRUCTION

At Cree | Wolfspeed, we are driving the industry transition from silicon to silicon carbide. To meet the increasing demand for our groundbreaking Wolfspeed technology that supports the growing electric vehicle (EV), 4G/5G mobile and industrial markets, we announced last fall that the company is establishing a silicon carbide corridor on the East Coast of the United States.

We are currently constructing the world's largest silicon carbide fabrication in Marcy, New York. This brand new, state-of-the-art power and RF wafer fabrication facility will be automotive-qualified and 200mm-capable. It is complemented by our mega materials factory expansion currently underway at our Durham, North Carolina headquarters. The new fabrication facility will dramatically increase capacity for our Wolfspeed silicon carbide and GaN business and will be a bigger, highly-automated factory with greater output capability.

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PRODUCT OVERVIEW



# Revasum's Fully-Automated, Single-Wafer Toolset

## 6EZ/7AF



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**7AF-HMG Grinder**



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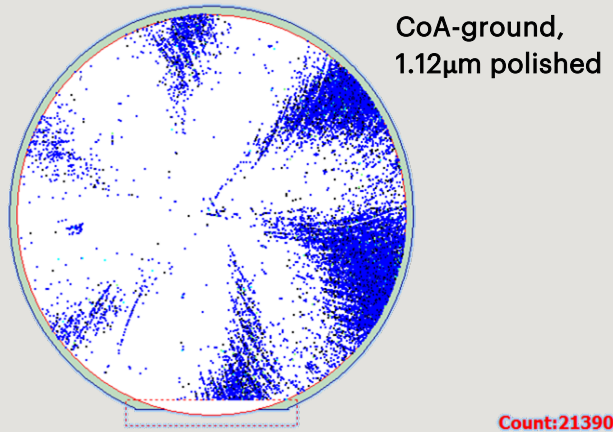
**6EZ Polisher**

### COMPETITIVE ADVANTAGE

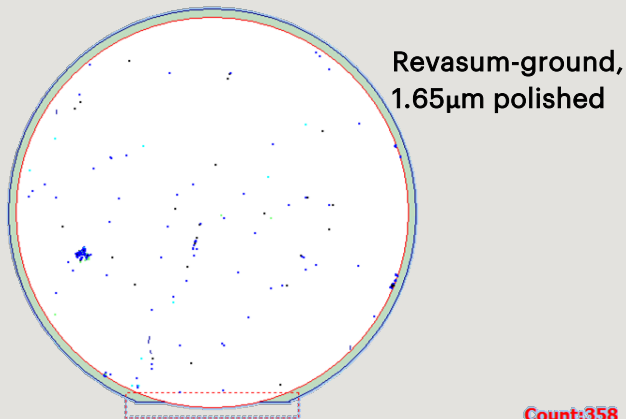
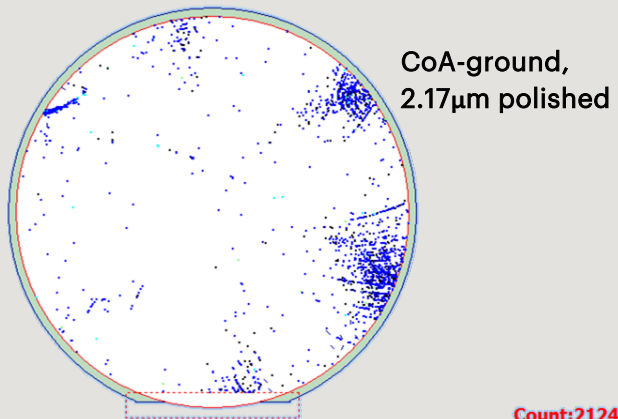
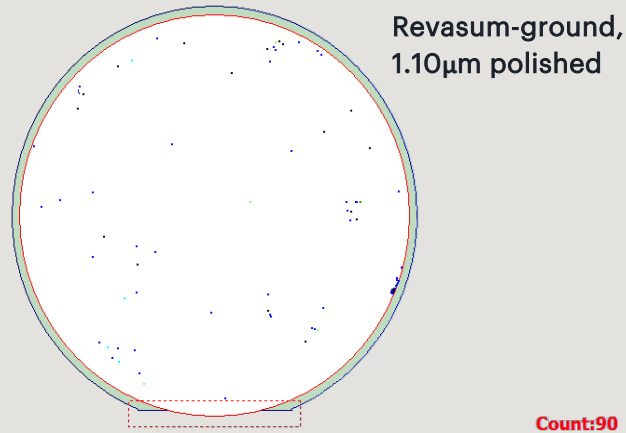
- ✓ Fully-automated
- ✓ Dry-In/Dry-Out
- ✓ No wafer sort required
- ✓ Minimize wafer loss
- ✓ Scalable to 200mm w/o throughput loss
- ✓ Higher yield
- ✓ Low/no rework needed
- ✓ Improved TTV & surface finish
- ✓ Better wafer-to-wafer consistency
- ✓ Integrated post-polish clean
- ✓ Low particle count

# Revasum's Single-Wafer Toolset Delivers Exceptional Surface Quality

Competitor A  
Grinder  
+ 6EZ Polisher



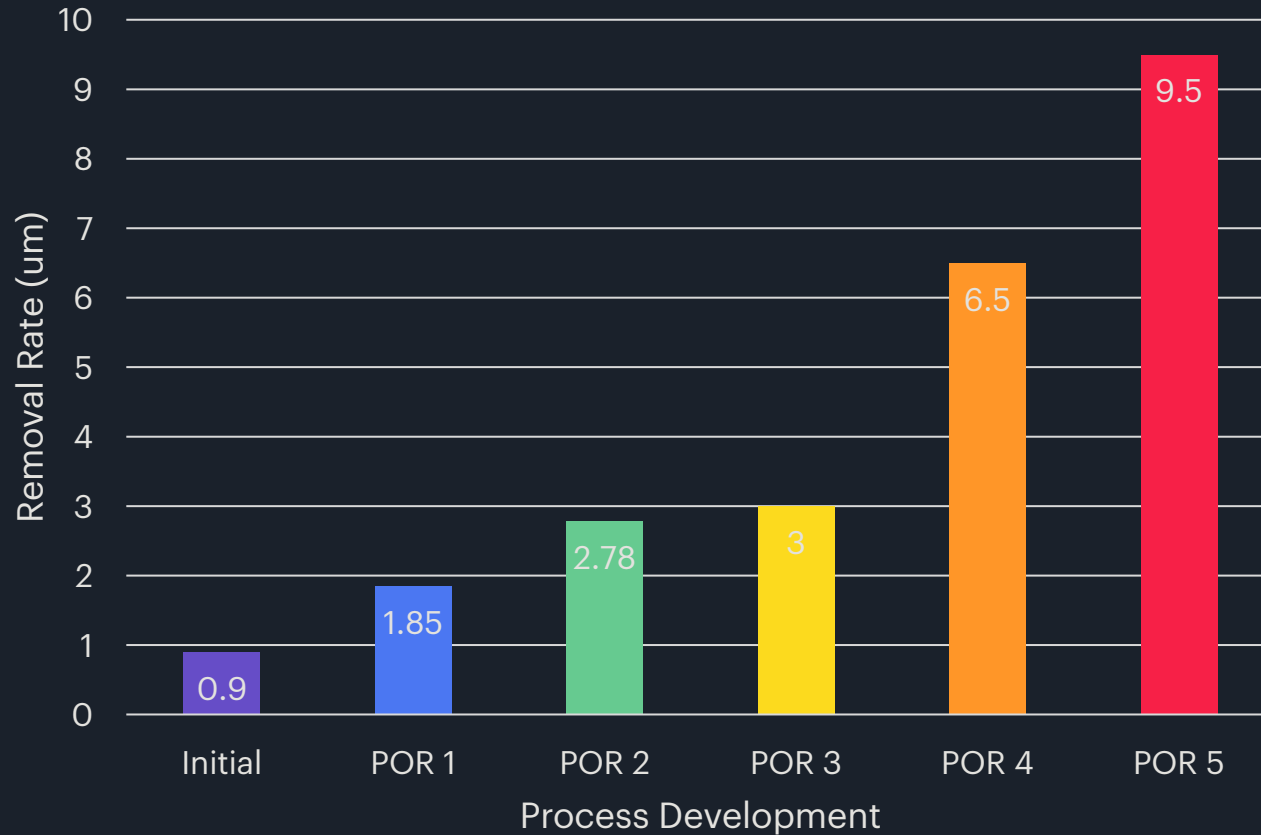
Revasum  
7AF-HMG Grinder  
+ 6EZ Polisher



- We polished wafers using the 6EZ from the same source but processed on different grinders
  - Competitor A grinder
  - Revasum 7AF-HMG grinder
- Similar polish removal shows a stark difference in surface quality.
- Even with an additional 1µm polished, grind artifacts from Competitor A's grinder are still visible.
- We have a robust understanding of how pre-polish processing impacts the final result after CMP.

# Delivering the lowest single-wafer COO

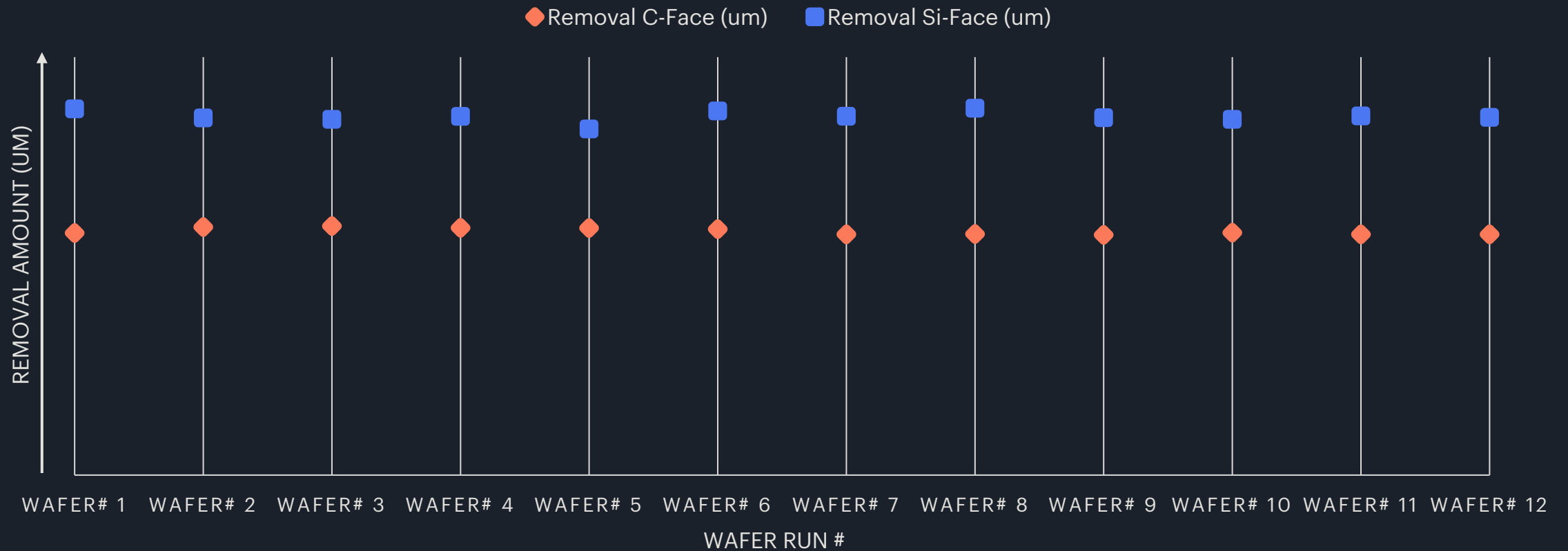
SiC Si-Face Stock Removal Rate Progression



- Dramatic increases in removal rate have been achieved and continue to improve.
- Our POR4 has been confirmed on multiple wafer sources and is the basis for our industry partner's production process.
- Removal rates of **10+ μm/hr** have been achieved with POR5 while maintaining scratch-free, low defect surfaces.
- We continue to refine these cutting-edge processes to achieve the best wafer shape metrics possible... all with the 6EZ!

# Unparalleled Repeatability

## SILICON CARBIDE 6EZ PROCESS RUN



# 6EZ Single-Wafer SiC Polish vs. Batch Polish

Wafer Metric	6EZ Single-Wafer SiC Polisher	Batch Polisher	Winner
Throughput 150mm	~ 8 wafers/hr	~ 6 wafers/hr	<b>REVASUM</b>
Throughput 200mm	~ 8 wafers/hr	~ 4 wafers/hr	<b>REVASUM</b>
Removal Variation	< 0.3 $\mu\text{m}$	> 1 $\mu\text{m}$	<b>REVASUM</b>
TTV	$\leq$ 30% of total removal	Variable	<b>REVASUM</b>
Bow Degradation	< 10 $\mu\text{m}$	> 10 $\mu\text{m}$	<b>REVASUM</b>
Warp Degradation	< 10 $\mu\text{m}$	> 10 $\mu\text{m}$	<b>REVASUM</b>
Surface Ra	$\leq$ 1 Ang. Si Face	< 3 Ang. Si Face	<b>REVASUM</b>
Scratch Length	$\leq$ 10 mm Total Cumulative	> 20mm Total Cumulative	<b>REVASUM</b>
LPD's	< 100	>> 100	<b>REVASUM</b>

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FINANCIAL UPDATE

# Key Financial Highlights – Q1 2021 (Unaudited)

US\$4.4M

Equipment Backlog

US\$1.8M

-22%<sub>2</sub>

Year to Date Revenue

US\$2.0M

-40%<sub>2</sub>

Year to Date OPEX

US\$5.4M

-11.8%<sub>1</sub>

Raw Materials

US\$7.3M

+256%<sub>1</sub>

Cash at Bank &  
On Hand

US\$0.8M

Other Revenue Backlog

US\$1.1M

+US\$1.3M<sub>2</sub>

Year to Date Gross  
Profit

63.84%

+71.6%<sub>2</sub>

Year to Date Gross  
Margin

US\$3.1M

+80%<sub>1</sub>

WIP

US\$145K

Operating Cash  
Inflows

23 1) Compared to FY20 year end date (January 3<sup>rd</sup>, 2021).

2) Compared to M320 YTD profit & loss.

# Summary Cash Flow Statement – Q1 2021 (Unaudited)

	Q121 US\$'000
Receipts from Customers	3,906
Payments to Suppliers & Employees & Interest	(3,791)
Cash Inflows from Operating Activities	145
Cash Outflows from Investing Activities	(85)
Cash Inflows from Financing Activities	5,897
Net Cash Inflows	5,957
Closing Cash Balance	7,321

- Receipts from customers include deposits taken on orders for 6 tools, including both 6DZs & 7AF-HMGs
- Orders for 6DZs consume significant on-hand raw materials, resulting in reduced cash outflows
- Improved controls over expenditure by management resulted in net cash inflows of US\$145K for Q1 2021
- Capital raise completed in February 2021 provided net inflows of US\$5.75M
- PPP Loan of US\$1.17M secured in January 2021
- Bridge Bank working capital loan of US\$1.0M repaid during the quarter





Q&A  
**REVASUM**

The Future of Silicon Carbide Wafer Processing