

The logo for PDF/SOLUTIONS is displayed in the top left corner. The word 'PDF' is in a blue, sans-serif font, followed by a blue diagonal slash. The word 'SOLUTIONS' is in a white, bold, sans-serif font, with a small 'TM' trademark symbol to its upper right. The background of the slide is a dark blue, abstract digital landscape with glowing blue and white lines, a grid pattern, and a central glowing blue square, suggesting a high-tech or data-driven environment.

**PDF/SOLUTIONS™**

## **Investor Presentation**

**February 2024**

**John Kibarian, President & CEO, Co-Founder**

**Kimon Michaels, Executive VP, Products and Solutions, Co-Founder**

**Adnan Raza, Executive VP, Finance & CFO**

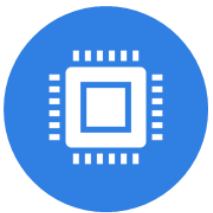
*Certain statements in this presentation, and statements that may be made when discussing it, regarding the Company's future expected business performance and financial results are forward looking and are subject to future events and circumstances. Actual results could differ materially from those expressed in these forward-looking statements. Risks and uncertainties that could cause results to differ materially include risks associated with: the effectiveness of our business and technology strategies; current semiconductor trends; continued adoption of the Company's solutions by new and existing customers; project milestones or delays and performance criteria achieved; cost and schedule of new product development; the impact of global economic trends and rising inflation and interest rates; the provision of technology and services prior to the execution of a final contract; supply chain disruptions; the success of the Company's strategic growth opportunities and collaborations; our ability to successfully integrate acquired businesses and technologies; whether we can successfully convert backlog into revenue; customers' production volumes under contracts that provide Gainshare royalties; possible impacts from the evolving trade regulatory environment and geopolitical tensions; our ability to obtain additional financial if needed; and other risks set forth in PDF Solutions' periodic public filings with the Securities and Exchange Commission, including, without limitation, its Annual Reports on Form 10-K, most recently filed for the year ended December 31, 2023, Quarterly Reports on Form 10-Q, and Current Reports on Form 8-K and amendments to such reports. The forward-looking statements made herein or about this presentation are made as of the date hereof, and PDF Solutions does not assume any obligation to update such statements nor the reasons why actual results could differ materially from those projected in such statements.*

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# PDF Solutions Overview

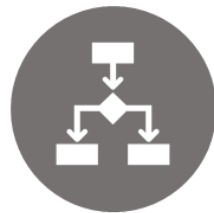
- PDF provides advanced data analytics, machine learning, and equipment connectivity products, services, and systems for the semiconductor supply chain
- PDF products improve process efficiency and product reliability:
  - Analytics software and services for the end-to-end needs of the semiconductor value chain
  - Connectivity and control software and services for factory equipment
  - Differentiated data from manufacturing, test, and in-field use based on IP integrated into semiconductor devices



**IC Design**



**Fab**



**Sort**



**Assembly**



**Test**

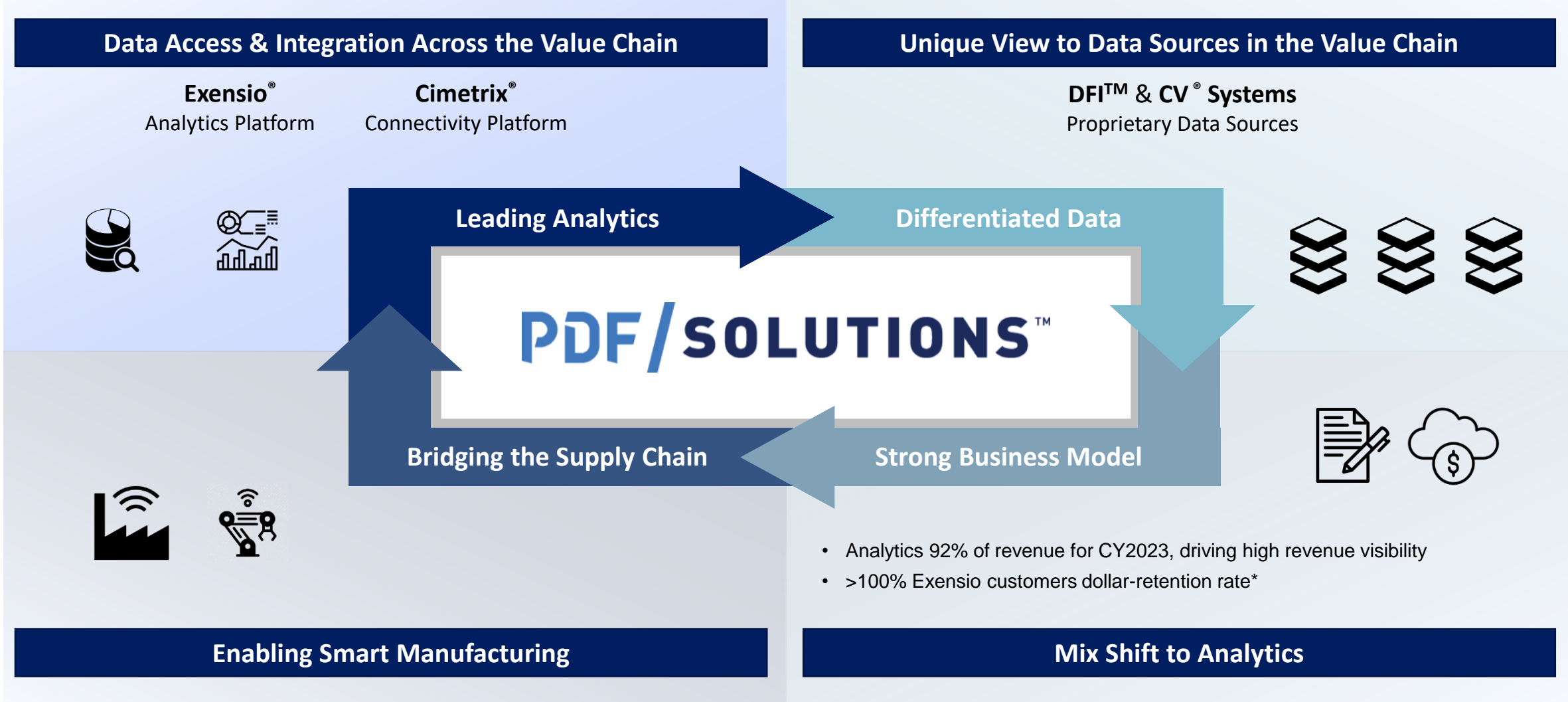


**System**

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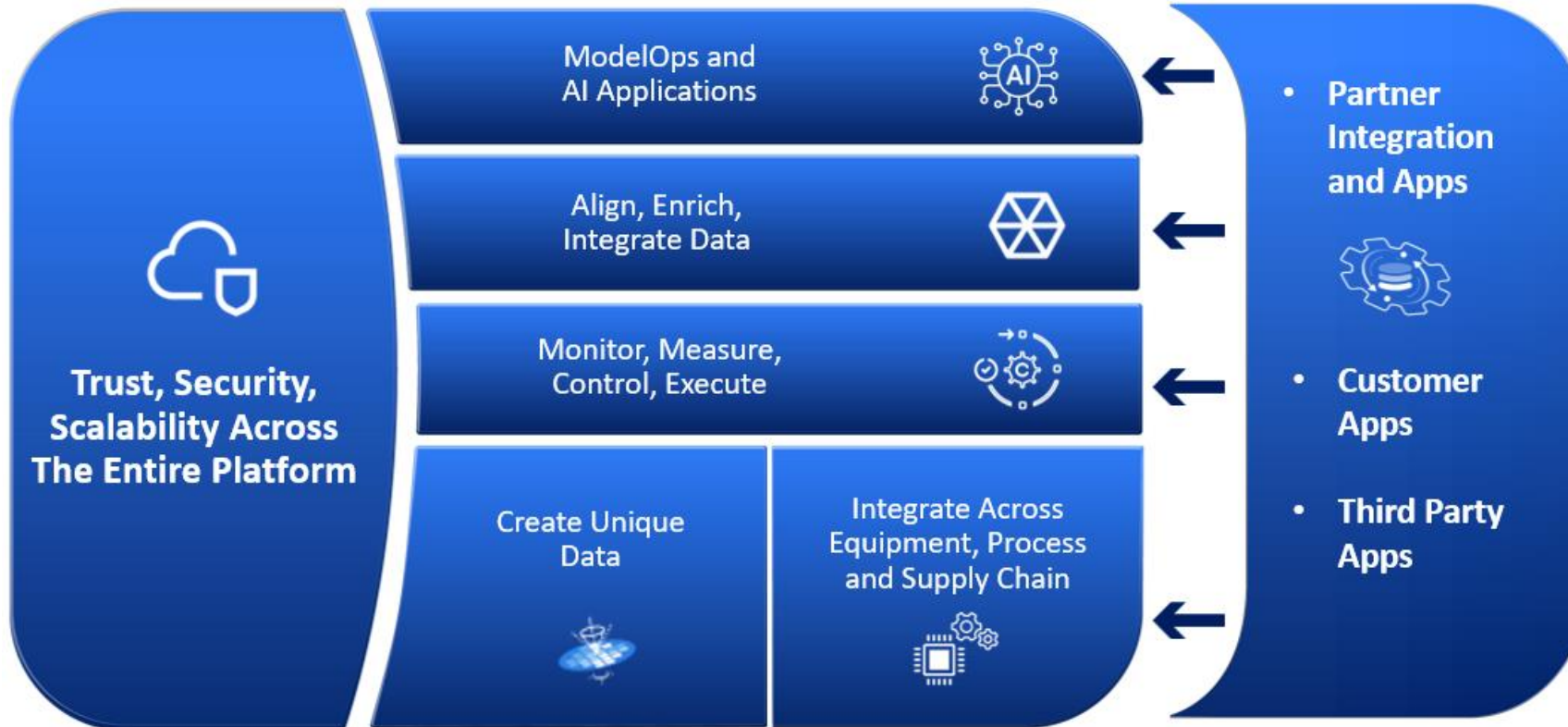
# PDF Solutions Platform Overview



\*CY2023 vs CY2022

# PDF Solutions Integrated Platform Architecture

Fully integrated solution to accelerate production ramp, improve overall yield and quality



## PDF platform revenue growth drivers:

- AI driven actionable insights
- New go-to-market paths via partnerships
- Transition to automotive electrification

# Building a Platform for Success

## GROWTH

- Analytics revenue grew 17% Y/Y from CY2022 to CY2023
- Analytics at 92% of total revenue in CY2023

## PROFITABILITY

- GAAP gross margin of 68% for Q4'23
- Non-GAAP gross margin of 72% for Q4'23
- 70%+ non-GAAP gross margins target model

## VISIBILITY

- Greater than 100% Exensio® customers dollar-retention rate\*
- Strong ending backlog of \$230M

## DIVERSIFICATION

- No country outside the United States accounts for more than ~16% of revenue in CY2023
- Regions of North America grew by double-digit percentages on a Y/Y TTM basis

## STRENGTH

- \$135.5M in cash and short-term investment as of Q4'23
- No debt

## COLLABORATIONS

- Expanding strategic collaboration across various sectors
- Partnering with industry-leaders, including Advantest, AWS, IBM, K&S, proteanTecs, SAP, Siemens, and Teradyne

\*CY2023 vs CY2022

# Well-Received 2023 User Conference and Analyst Day



- 300+ registered attendees
- 17 customer/partner presentations
- Over 80 companies and industry organizations represented

## Presenting Companies

**ADVANTEST**



**IBM**

**intel.**

**MULTIBEAM**

**proteanTecs**

**RENESAS**



**SIEMENS**

**TERADYNE**

**Vendia**

# The Opportunity For PDF Is Expanding



## Established strong presence:

- >140k equipment factory connections with over >40k process tools
- 350+ revenue generating customers in 31 countries through CY2023

## Strong product suite:

- #1 commercial solution for manufacturing yield and control with large cloud customer base
- Fastest growing commercial provider in manufacturing test operations leveraging DEX network
- Leading solution for die traceability through the supply chain

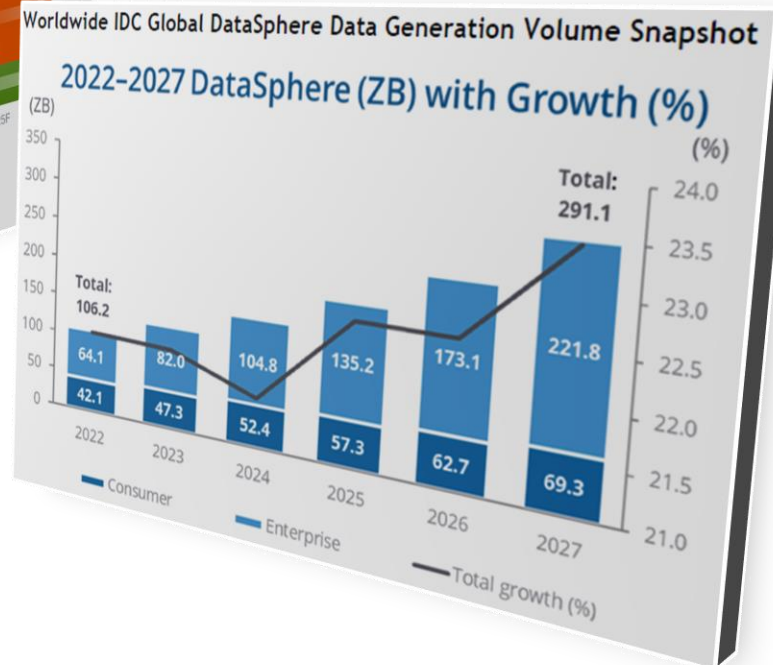
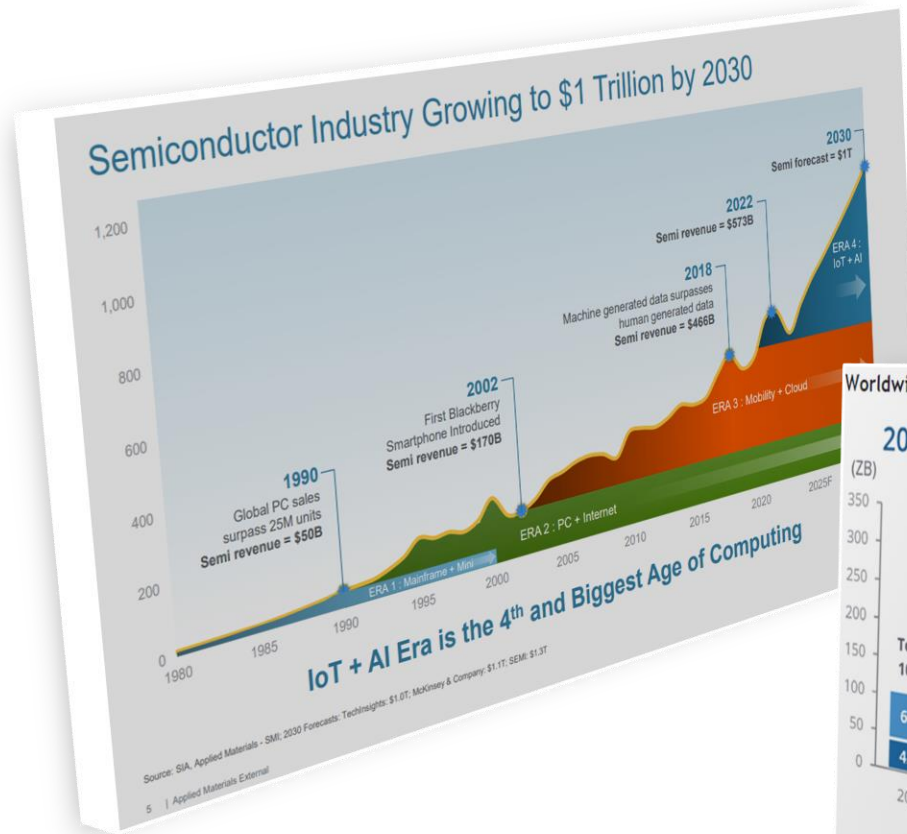
## Expansion opportunities increasing:

- Strong position within equipment, IP, Factory and Product companies, while expanding to additional Product and System companies

Representative industry participants; not indicative of actual customers. Logos are the property of the respective trademark owners.



# Strong Semiconductor End-Market Drivers



- AI is driving increasing data generation and data availability, which in turn is driving semiconductor revenue
- Driven by AI, semi revenue expected to reach \$1T+ by 2030

Sources: Applied Materials; IDC, April 2023

# Semiconductor Growth Inflection Points



<https://semiwiki.com/semiconductor-services/techinsights/316095-semicon-west-2022-and-the-imec-roadmap/>

**Winning Strategic Inflections - Chiplet Revolution**

**Open Chiplet: x86 Platform on a Package**

- Customer IP and Customized Chiplets: ARM, RISC-V, Intel x86
- New Die-to-die (D2D) Interconnect
- 4X I/O Performance\* at 1/10th Power
- Xeon Cores
- Advanced 3D Packaging

\*compared to PCIe subs

"We will lead a platform transform new customer and partner solutions"

<https://www.intel.com/content/dam/www/central-libraries/us/en/documents/2022-intel-investor-meeting-ifs.pdf>



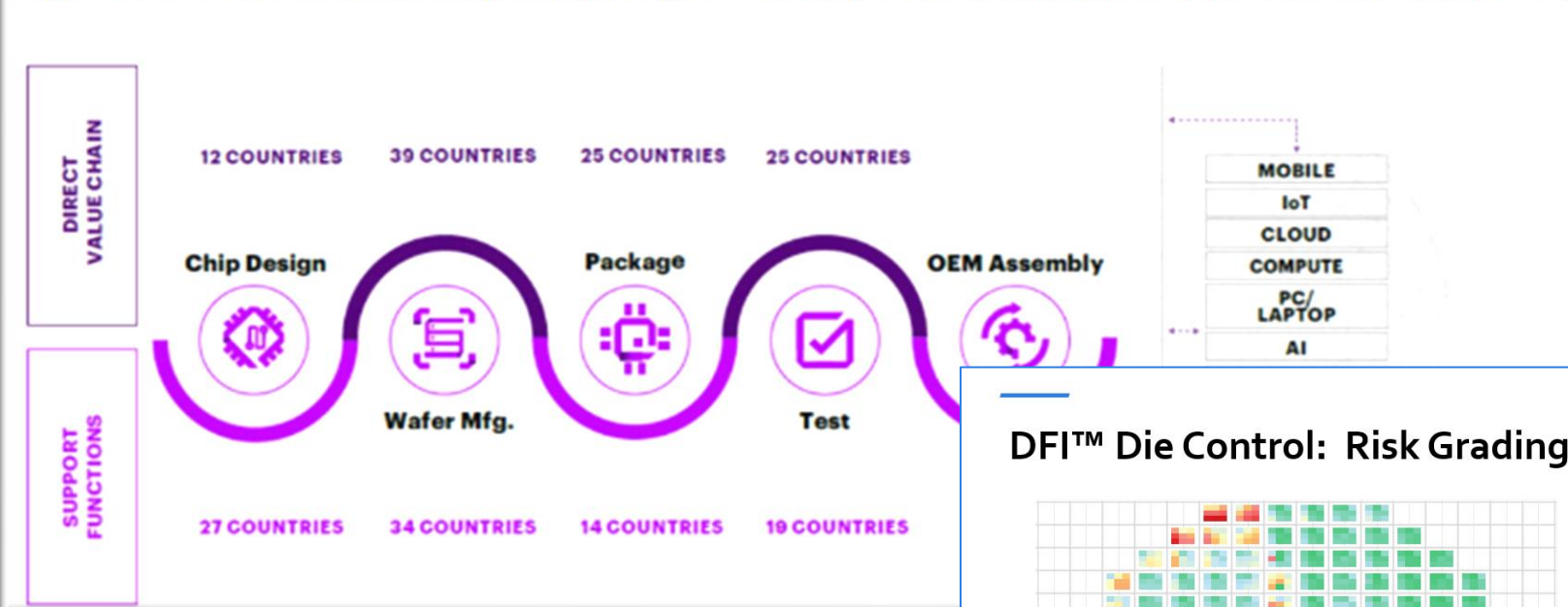
[https://www.semiconductors.org/wp-content/uploads/2022/02/Global-Semiconductor-Incentives\\_2-4-2022.pdf](https://www.semiconductors.org/wp-content/uploads/2022/02/Global-Semiconductor-Incentives_2-4-2022.pdf)

Achieving the necessary semi growth requires overcoming new inflection points

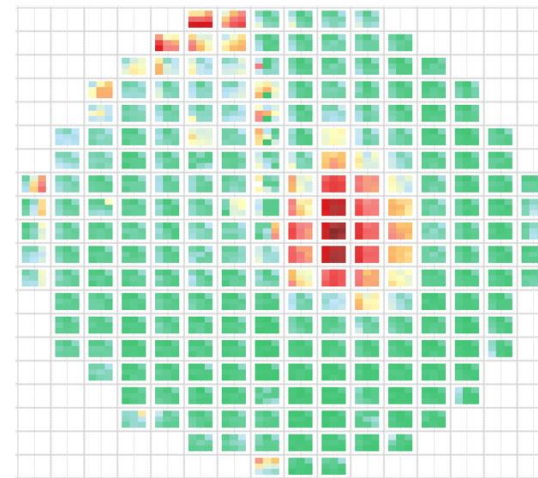
- New architectures & materials
- Chiplets
- Geographic disaggregation

# AI Is Enabler For Rapid Growth

Figure 9: Number of countries participating in various phases of semiconductor manufacturing activity



## DFI™ Die Control: Risk Grading



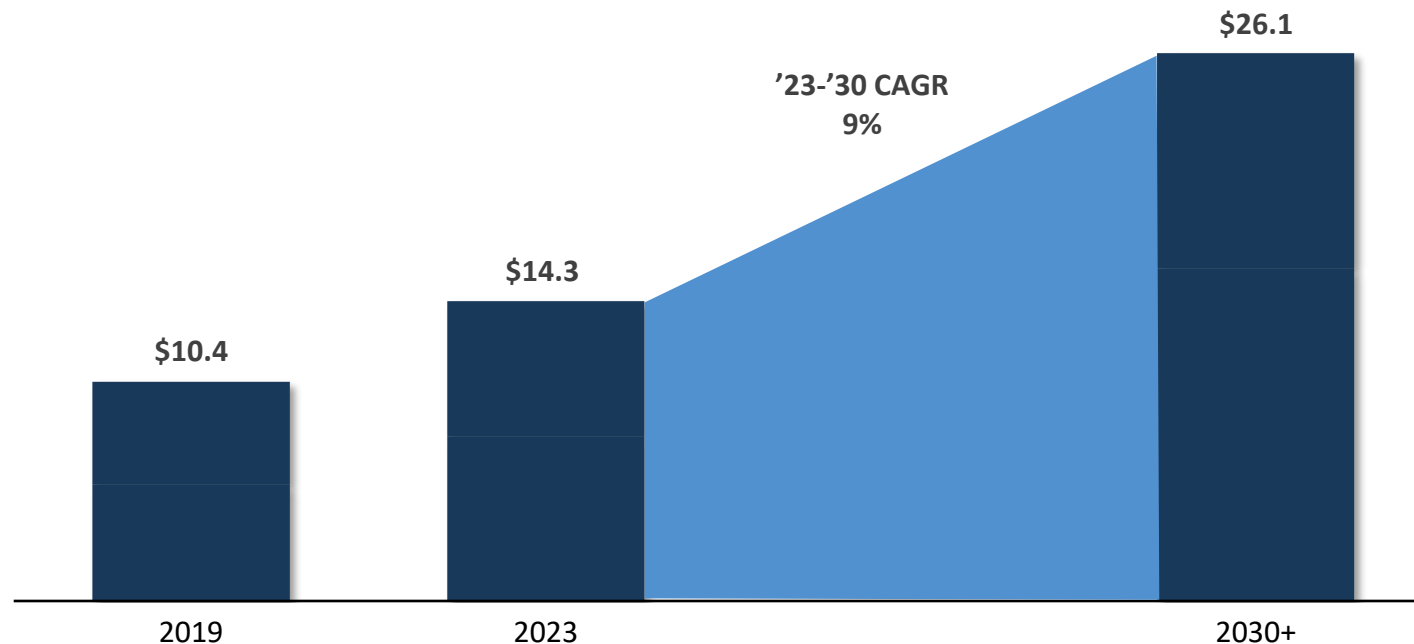
- AI adoption across the semiconductor supply chain is a key component to efficiently achieving semi growth

- Successful AI application requires:
  - Cross-supply chain data integration
  - The right data, not just more data
  - AI/ML model operations

# Total Semiconductor Analytics TAM

## Potential value capture of analytics in Semiconductors

(\$ in billions)



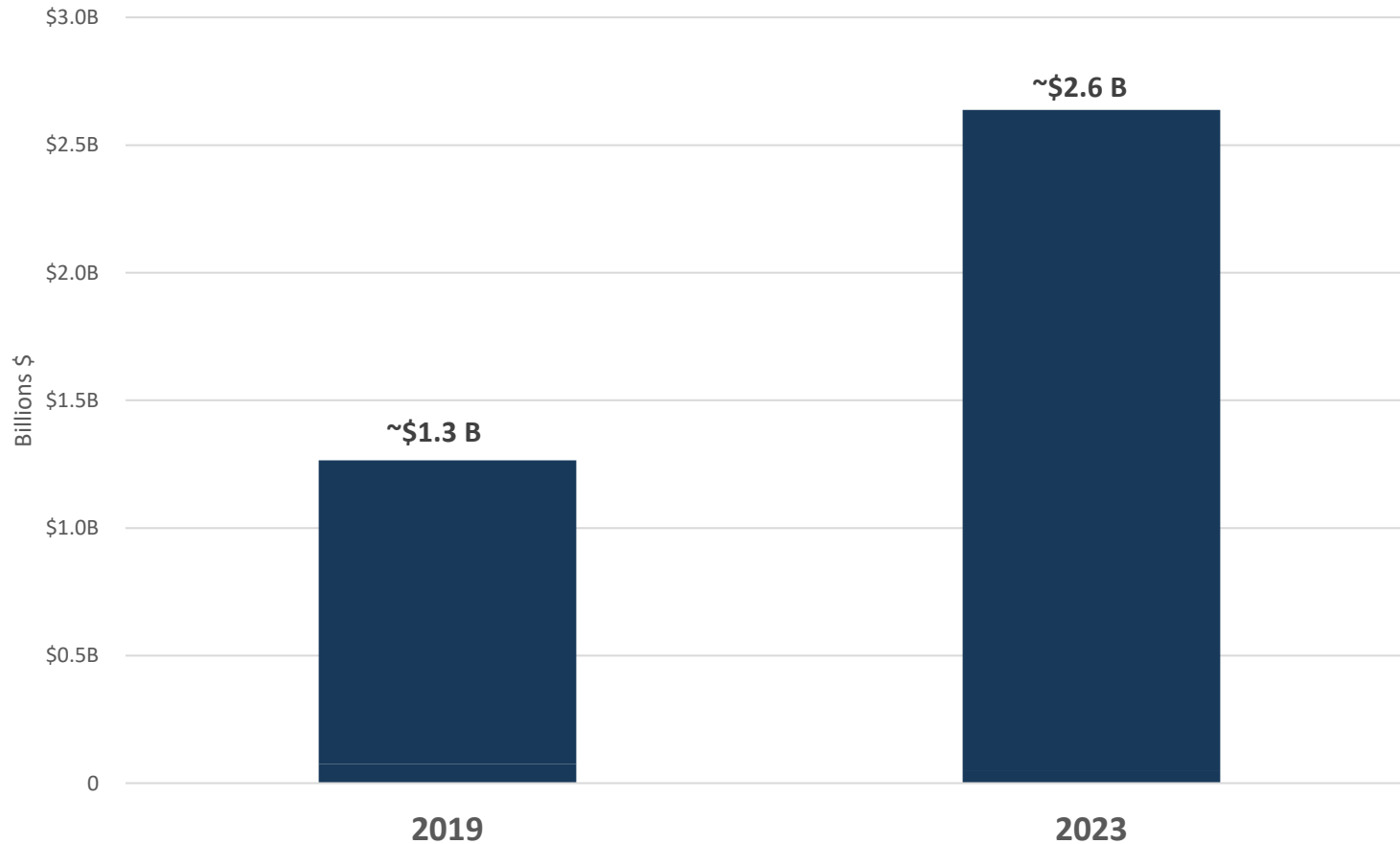
## Methodology

- Analytics as a portion of total R&D and COGS spending by Semiconductor Companies across three categories:
  - Fabless-Logic
  - IDM
  - Memory/Storage
- Estimated % of spending attributable to analytics based on each company type – Fabless-Logic, IDM, Memory/Storage
- Based on FactSet consensus spending estimates for 2023 for individual companies and industry experts projecting a \$1T market for semiconductor revenue by 2030+

Source: FactSet and Wall Street estimates.



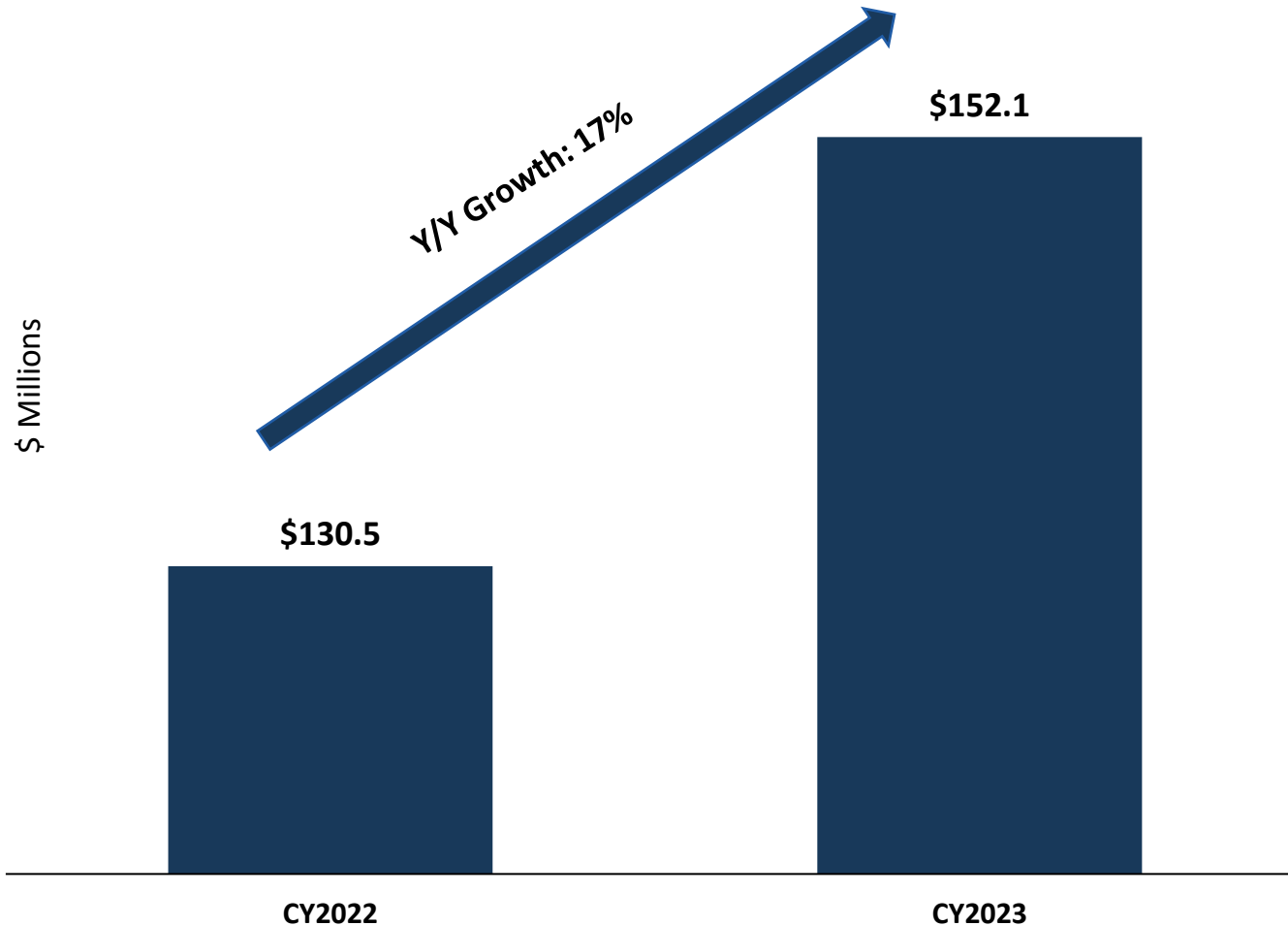
# Market Opportunity – PDF SAM



Source: PDF Solutions estimates

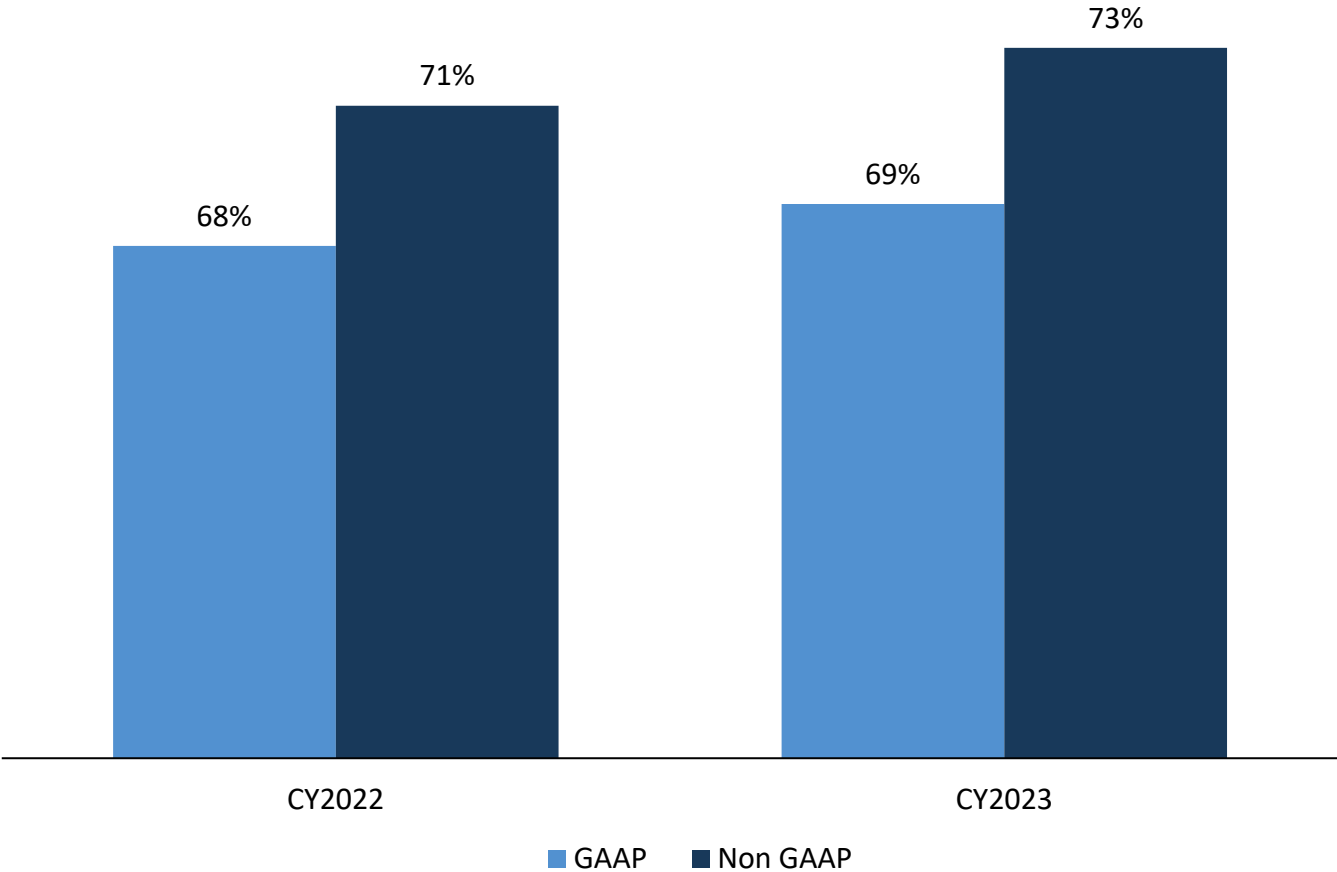
- SAM of more than \$2B (based on 2023 data)
- Growth drivers:
  - Adoption across supply chain
  - ML & advanced solutions
  - DFI for quality & reliability
  - Transition to cloud

# Analytics Revenue



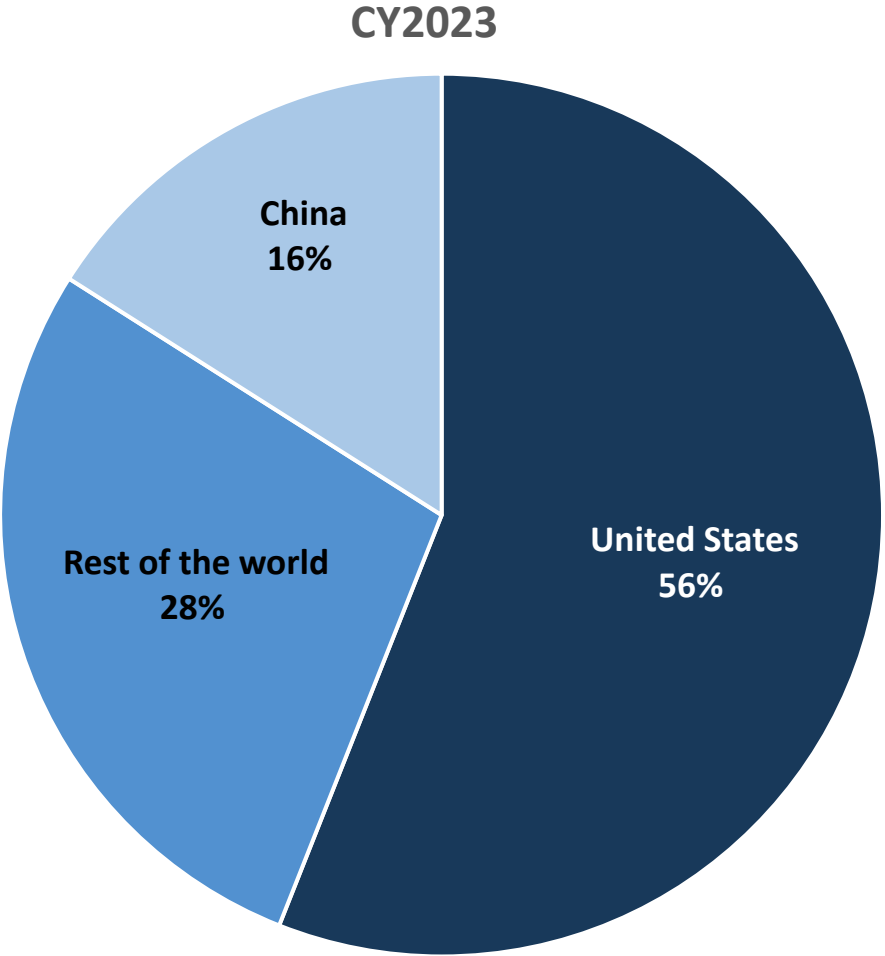
- Y/Y Analytics Growth of 17% from CY2022 to CY2023
- Average Analytics revenue per customer, excluding Cimetricx, \$908K in CY2023, a 15% increase from \$789K in CY2022

# Gross Margins



- Achieved our long-term target Non-GAAP gross margin of 70%+ in CY2023
- Analytics customers transitioning to subscription and cloud over time
- First monetization of technology was IYR engagements with associated royalties
- Second wave of monetization consists of growing the Analytics business

# Global Geographic Revenue Distribution



- Globally diverse geographic distribution
- No country outside the United States accounts for more than ~16%
- United States largest market at 56% of revenues



# Acquisitions and Product Releases Expanded Scope

## Continued Transition To Subscription Model

### 2000 - 2010

- AISS Acquisition**
  - o Layout analysis
- IDS Software Acquisition**
  - o Yield analysis
  - o DB
- Si Automation Acquisition**
  - o FDC
- Establish Office in Shanghai
  - o Converting field to address analytics growth
- Fabbrix Acquisition**
  - o Si IP for DFM
- Triant Acquisition**
  - o FDC
- Production deployment out of Cassandra-based FDC for YieldAware FDC
- Extension of YieldAware FDC to include consumable analysis

### 2015

- Salland Acquisition**
  - o Test, package, assembly mgmt
- Syntricity Acquisition**
  - o Hosted yield analysis & product characterization
- Established Exensio Test offering

### 2018

- CV Core**
  - o Proof of concept
- Completed major data type migration to Cassandra enabling ~20X speedup

### 2016

- Integration of Exensio reporting with Syntricity dataConductor and rebranding as Exensio Hosted

### 2017

- Kinesys Acquisition**
  - o Assembly & packaging traceability

### 2020

- First 8-figure size deal of conversion to cloud
- Bookings of >3x YoY and QoQ
- Strong demand in HPC market
- Analytics >70% of total revenue
- Partnership with Advantest >50% world's tester market
- Cimatrix Acquisition**
  - o Leader in semiconductor equipment connectivity software
  - o Enabling smart manufacturing and smart factory

### 2019

- StreamMosaic Acquisition**
  - o AI & ML for semi industry
- First Big Data Customers on cloud
- First POC processing integration of StreamMosaic technologies with Exensio in Asia

### 2021

- Conversion of Quick Start contract to a large booking for Leading Edge and Exensio
- Siemens collaborates with PDF Solutions to boost IC yield and speed time to market

### 2023 1H

- PDF Solutions Collaboration with proteanTecs and Voltaiq
- Analog Devices Adopts PDF Solutions' Analytics Solution
- PDF Solutions Successfully Implements Exensio Analytics Cloud for Silicon Motion

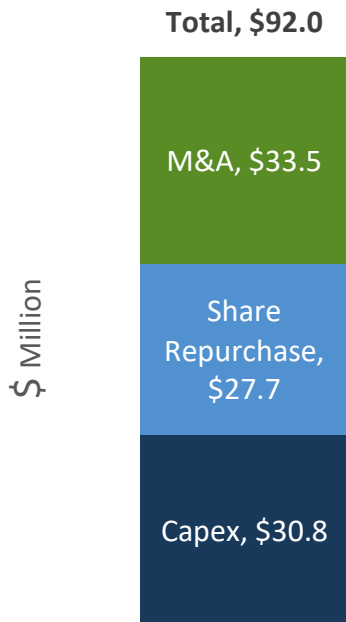
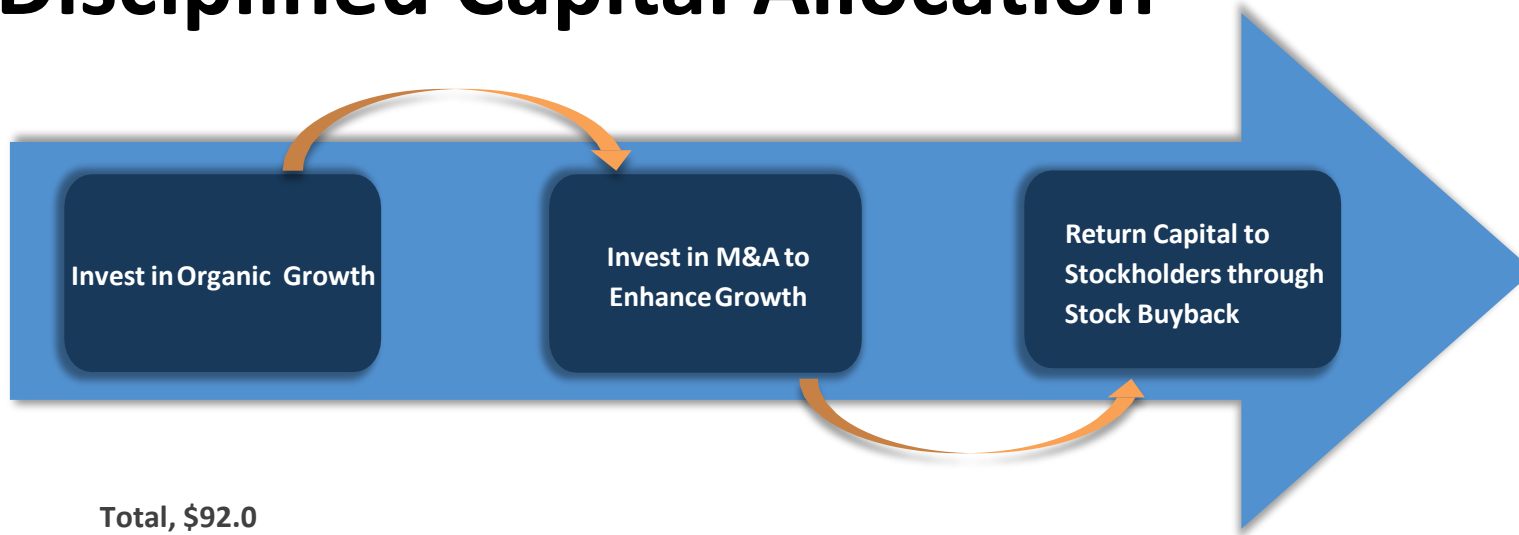
### 2022

- PDF Solutions Announces Collaboration with SAP
- Kulicke & Soffa and PDF Solutions Announce Collaboration
- Montage Technology Selects PDF Solutions Exensio Fabless for Advanced Semiconductor Analytics
- GigaDevice Selects PDF Solutions to Support Rapid Semiconductor Growth

### 2023 2H

- Acquisition of Lantern Machinery Analytics
- SEMI Honors the Leadership of the Cyber Security Standards Committee
- PDF Solutions Announces 2023 Users Conference and Analyst Day
- PDF launches a Freemium Entry Point for its Exensio® Analytics Platform

# Disciplined Capital Allocation



(\$ Millions)	End of 2019	End of 2020	End of 2021	End of 2022	End of 2023
Cash and ST invt	\$97.6	\$145.3	\$140.2	\$139.2	\$135.5
Debt	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Share Repurchase	\$9.6	\$0.0	\$4.5	\$22.5	\$0.7

2020 thru Q4'23

- Capex investments include DFI/eProbe, CVi, IP, DEX network, and infrastructure
- Cash balance has increased while PDF:
  - Invested in Capex
  - Returned capital to stockholders through stock buyback
  - Made acquisitions
  - Received strategic investment

# Long-Term Target Financial Model

<b>Total Revenue Growth</b>	<b>&gt;20%</b>
Non-GAAP Gross Margins	>75%
Non-GAAP Operating Margin	20%

# Summary – PDF Solutions





# Thank You

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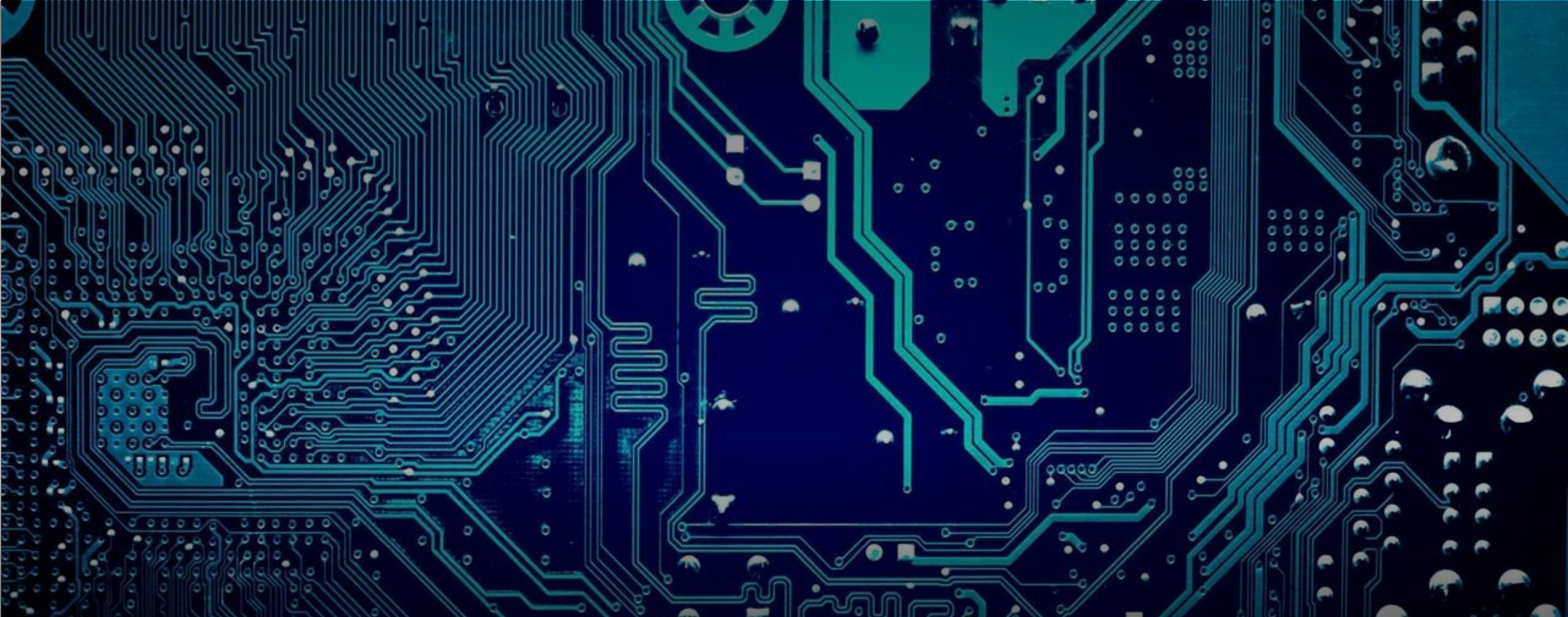


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# Financials - Appendix

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# Non-GAAP Presentation

In addition to providing results that are determined in accordance with Generally Accepted Accounting Principles in the United States of America (GAAP), the Company also provides certain non-GAAP financial measures. Non-GAAP net income (loss) excludes the effects of non-recurring items (including adjustment to contingent consideration related to acquisition, restructuring charges and severance payments, and expenses related to an arbitration proceeding for a disputed contract with a customer), stock-based compensation expense, amortization of acquired technology and other acquired intangible assets, and their related income tax effects, as applicable, as well as adjustments for the non-cash portion of income taxes and tax impact of the CARES Act. These non-GAAP financial measures are used by management internally to measure the Company's profitability and performance. PDF Solutions' management believes that these non-GAAP measures provide useful supplemental measures to investors regarding the Company's ongoing operations in light of the fact that none of these categories of expense has a current effect on the future uses of cash (with the exception of certain non-recurring items) nor do they impact the generation of current or future revenues. These non-GAAP results should not be considered an alternative to, or a substitute for, GAAP financial information, and may be different from similarly titled non-GAAP measures used by other companies. In particular, these non-GAAP financial measures are not a substitute for GAAP measures of income or loss as a measure of performance, or to cash flows from operating, investing and financing activities as a measure of liquidity. Management uses these non-GAAP financial measures internally to measure profitability and performance; these non-GAAP measures are presented here to give investors an opportunity to see the Company's financial results as viewed by management. A detailed reconciliation of the adjustments made to comparable GAAP measures is included herein.

# GAAP to Non-GAAP Income Reconciliation

in thousands (except share amounts, percent of revenue, and EPS)

	2020	2021	2022	2023
<b>GAAP net income (loss)</b>	<b>\$ (40,363)</b>	<b>\$ (21,488)</b>	<b>\$ (3,429)</b>	<b>\$ 3,105</b>
Adjustments to reconcile GAAP net income (loss) to non-GAAP net income (loss):				
Stock-based compensation expense	12,463	12,931	19,648	21,484
Amortization of acquired technology	705	2,079	2,213	2,266
Amortization of other acquired intangible assets	741	1,255	1,270	1,285
Write-down in value of property and equipment	490	3,183	-	-
Acquisition costs & adjustment to contingent consideration related to acquisition	752	-	-	209
Legal arbitration/litigation *	1,098	1,951	1,895	2,600
Proceeds from sale of previously written-off property and equipment	-	-	-	(105)
Tax Impact of Adjustments	23,309	3,091	1,326	(2,374)
<b>Non-GAAP net income (loss)</b>	<b>\$ (805)</b>	<b>\$ 3,002</b>	<b>\$ 22,924</b>	<b>\$ 28,470</b>
<b>GAAP net income (loss) per diluted share</b>	<b>(1.17)</b>	<b>(0.58)</b>	<b>(0.09)</b>	<b>0.08</b>
<b>Non-GAAP net income (loss) per diluted share</b>	<b>(0.02)</b>	<b>0.08</b>	<b>0.60</b>	<b>0.73</b>
<b>Shares used in diluted shares calculation (in millions)</b>	<b>34.4</b>	<b>37.9</b>	<b>38.1</b>	<b>38.9</b>

\* Represents the expenses related to an arbitration proceeding over a disputed contract with a customer, which expenses are expected to continue until the arbitration is resolved.



# GAAP to Non-GAAP Gross Margin Reconciliation

in thousands

**GAAP Gross Margin**

*GAAP Gross Margin %*

Adjustments to reconcile GAAP gross margin (loss) to non-GAAP gross margin:

Stock-based compensation expense

Amortization of acquired technology

**Non-GAAP gross margin**

*Non-GAAP gross margin %*

	2020	2021	2022	2023
	<b>\$ 51,281</b>	<b>\$ 66,867</b>	<b>\$ 100,642</b>	<b>\$ 114,086</b>
	58%	60%	68%	69%
	3,454	2,563	2,974	4,169
	705	2,079	2,213	2,266
	<b>\$ 55,440</b>	<b>\$ 71,509</b>	<b>\$ 105,828</b>	<b>\$ 120,521</b>
	63%	64%	71%	73%

# Balance Sheet

(\$ '000)

## ASSETS

Current assets:

	December 31			
	2020	2021	2022	2023
Cash and short-term investments	145,296	140,226	139,181	135,522
Accounts receivable, net	34,140	40,087	42,164	44,904
Prepays and other current assets	13,944	8,194	12,063	17,422
Total current assets	193,380	188,507	193,408	197,848
Property, plant and equipment, net	39,242	35,295	40,174	37,338
Operating lease right-of-use assets	6,672	5,408	6,002	4,926
Other assets	48,286	44,558	39,087	50,023
<b>Total Assets</b>	<b>287,580</b>	<b>273,768</b>	<b>278,671</b>	<b>290,136</b>

## LIABILITIES AND STOCKHOLDERS' EQUITY

Current liabilities:

Accounts payable	4,399	5,554	6,388	2,561
Accrued liabilities	14,648	12,823	22,529	19,433
Operating lease liabilities - current portion	1,926	1,758	1,412	1,529
Deferred revenue and billing in excess of revenue	21,232	23,691	27,871	27,320
Total current liabilities	42,205	43,826	58,200	50,843
Non-current operating lease liabilities	6,516	5,258	5,932	4,657
Deferred revenue - noncurrent portion		2,443	1,905	1,802
Tax and other long-term liabilities	4,353	2,656	2,622	3,888
Total liabilities	53,074	54,183	68,659	61,190
Total stockholders' equity	234,506	219,585	210,012	228,946
<b>Total liabilities and stockholders' equity</b>	<b>287,580</b>	<b>273,768</b>	<b>278,671</b>	<b>290,136</b>



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