

# Rambus Investor Presentation

Q4 2024



***Rambus***

# Safe Harbor for Forward-Looking Statements; Other Disclosures

This presentation contains forward-looking statements, including those relating to the Company's expectations regarding business opportunities, the Company's ability to deliver long-term, profitable growth, industry growth rates, timing of expected product launches, demand for existing and newly-acquired technologies, product and investment strategies, the Company's outlook and financial guidance for recent and upcoming quarters and related drivers, the Company's ability to effectively manage market challenges, and the effects of ASC 606 on reported revenue, among other items.

Such forward-looking statements are based on current expectations, estimates and projections, management's beliefs and certain assumptions. Actual results may differ materially. The Company's business generally is subject to a number of risks which are described more fully in the Company's periodic reports filed with the Securities and Exchange Commission. The Company undertakes no obligation to update forward-looking statements to reflect events or circumstances after the date hereof.

This presentation contains non-GAAP financial measures, including cost of product revenue, operating costs and expenses, and interest and other income (expense), net. In computing these non-GAAP financial measures, stock-based compensation expenses, acquisition/divestiture-related costs and retention bonus expense, gain on divestiture, impairment of assets, amortization of acquired intangible assets, expense on abandoned operating leases, restructuring and other charges, provision for (benefit from) income taxes, change in fair value earn-out liability, gain on sale of equity investment and certain other one-time adjustments were considered. The non-GAAP financial measures should not be considered a substitute for, or superior to, financial measures calculated in accordance with GAAP, and the financial results calculated in accordance with GAAP and reconciliations from these results should be carefully evaluated. Management believes the non-GAAP financial measures are appropriate for both its own assessment of, and to show investors, how the Company's performance compares to other periods. Reconciliations from GAAP to non-GAAP results are made available and more fully described on our website as well as the back of this deck and in the earnings release.

**Rambus**  
*Data* • Faster • Safer

**\$225M**

2023 Product Revenue

Industry-Leading  
**Chips and Silicon IP**

**\$196M**

2023 Cash from Operations



Data Center  
**>75%** of Chip and  
Silicon IP Revenue

GSA 2023  
**Most Respected Emerging  
Semiconductor Company**

\$100-500M Revenue

**+42%**

5-year CAGR  
Product Revenue

**34 Years**  
Technology Leadership

**San Jose HQ**  
Global Footprint

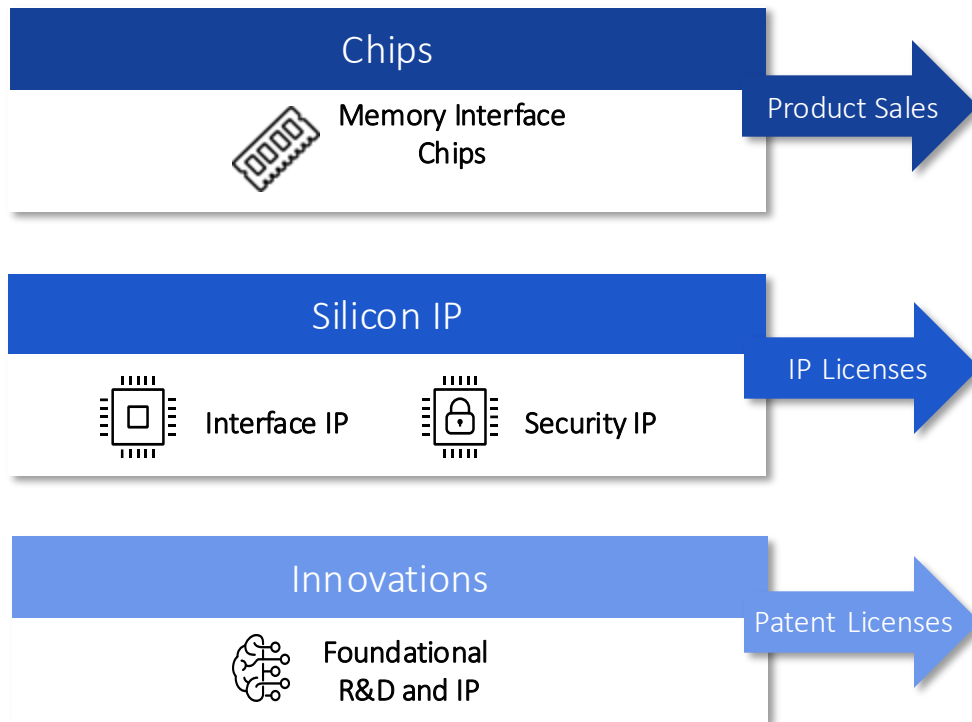
**~700 Employees**  
>70% in Engineering

**~2700**  
Patents and Patents Pending



# Semiconductor Solutions Built on Innovation

## Rambus Offerings

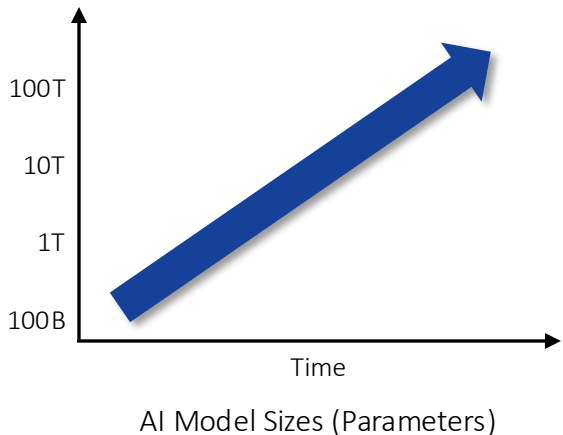


## Markets Served

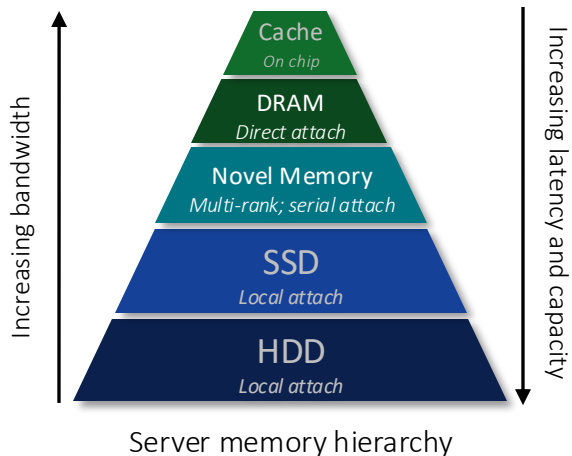


# Amplified Opportunities in Data Center and AI

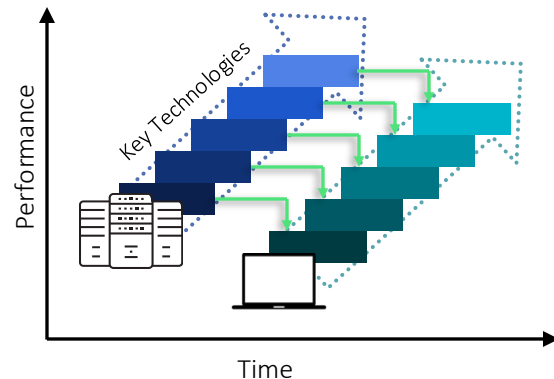
Meeting memory performance requirements of growing AI workloads



Addressing bandwidth and capacity requirements with novel memory solutions



Broadening adoption of key technologies into adjacent markets

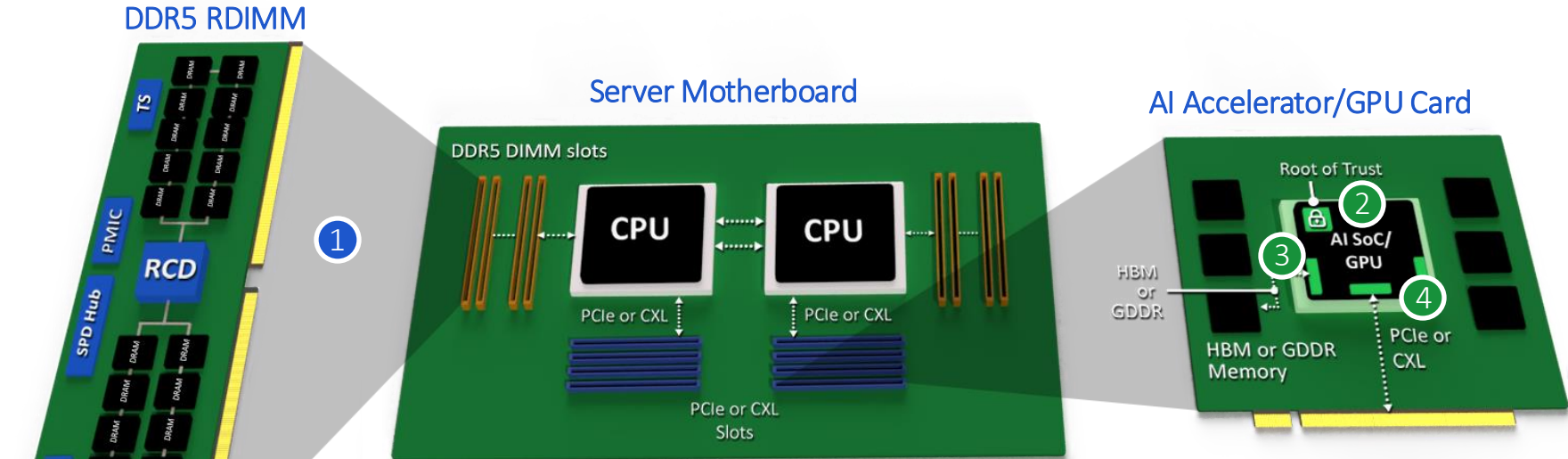


**Key Technologies:**

- Memory
- Power Management
- Clocking
- Interconnects
- Security

Increasing need for performance, delivered securely and reliably

# Rambus Solutions for the Data Center



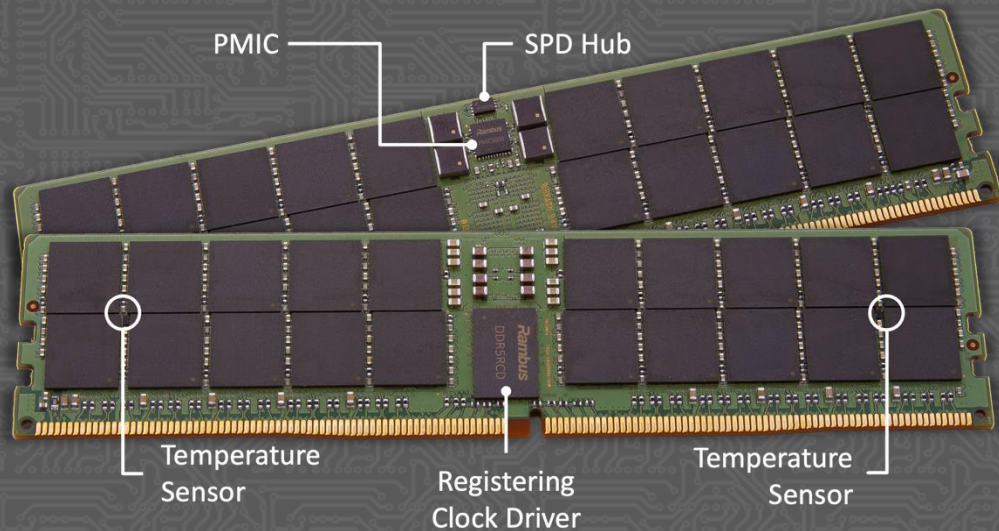
## Rambus Products:

- ① Memory Interface Chips: Registering Clock Driver, PMIC, SPD Hub, Temperature Sensor
- ② Root of Trust Security IP with Quantum Safe Cryptography
- ③ HBM/GDDR Memory Controller IP + Inline Memory Encryption Security IP
- ④ PCIe/CXL Controller IP (including Integrity and Data Encryption Security IP)

- Chips
- Silicon IP

# Rambus Memory Interface Chips

Driving the pace of server main memory performance



## DDR5 Server Chipset

**42%**

5-Year Product Revenue CAGR  
(~Memory Interface Chips)

**Industry-leading DDR5 RCDs**

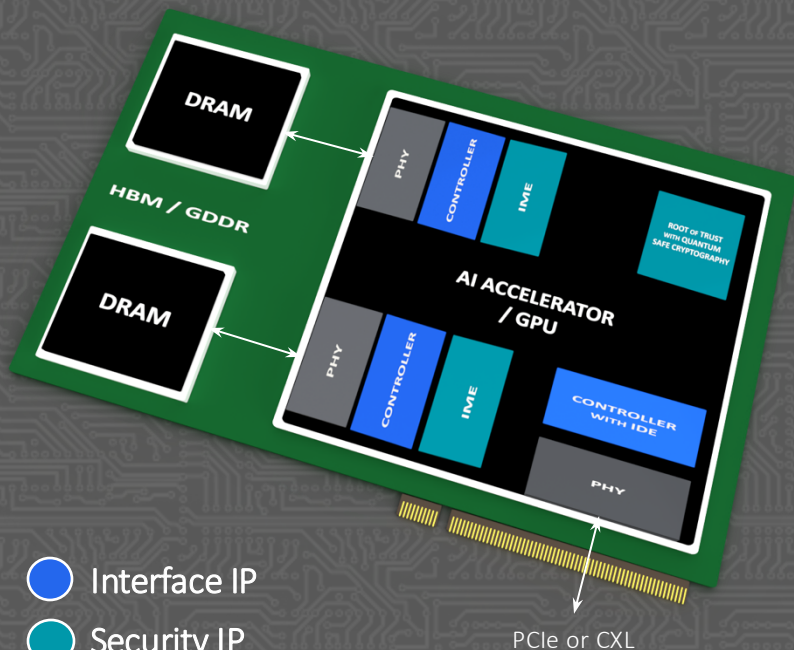
Gen1 4800 MT/s to Gen5 8000 MT/s

Expanding DDR5 chip portfolio:

- MRCD & MDB 12800 MT/s
- PMICs
- SPD Hub\* & Temperature Sensor
- Client Clock Driver\*

\*Supports client DIMMs

# Silicon IP Solutions for AI



- Essential building blocks for high-performance chips: HBM, GDDR, PCIe, CXL, PQC, Root of Trust, IME/IDE
- Key Benefits
  - Deliver industry-leading bandwidth performance
  - Enable high-speed data communications between devices
  - Protect data at rest, in use and in motion



# Rambus Uniquely Positioned for Novel Memory Solutions

## Industry Leadership

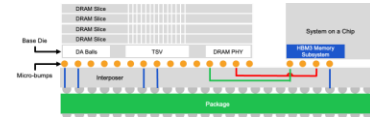
Industry leading performance to 12800 MT/s (MRDIMM) and 8000 MT/s (RDIMM) for DDR5-based servers and PCs



DDR5 Memory Interface Chipset

## Core Expertise

World-class expertise in memory interface and interconnect subsystems (digital controller and security IP)



HBM3E Memory Interface IP

## Innovation

34 years of research and innovation in high-performance memory, high-speed interfaces, and hardware security



Smart Data Acceleration Engine

## Foundation

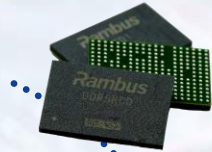
Company founded on mission to drive increased memory bandwidth for greater computing performance



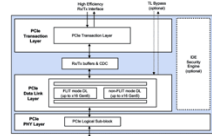
RDRAM Synchronous Memory

# Product Leadership Driving Long-term Growth

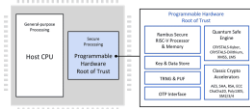
2018-2023  
**42%**  
Product Revenue  
CAGR\*



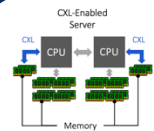
DDR5 memory interface chipsets delivering industry-leading performance



HBM, GDDR, PCIe, and CXL controller IP critical to data center and AI



Broadest portfolio of secure root of trust, protocol engine, and crypto accelerator cores

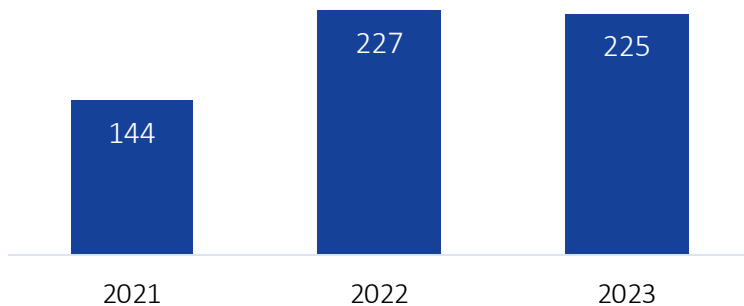


Experts in interconnect solutions critical for performance and utilization in emerging data center architectures

\*Consisting primarily of Memory Interface Chips

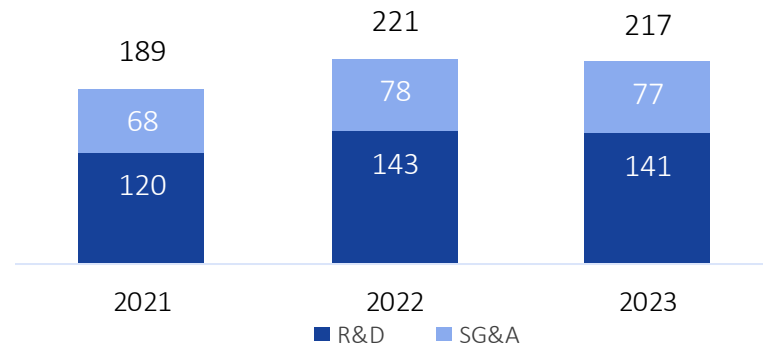
# Financial Highlights

Product Revenue\* (\$M)

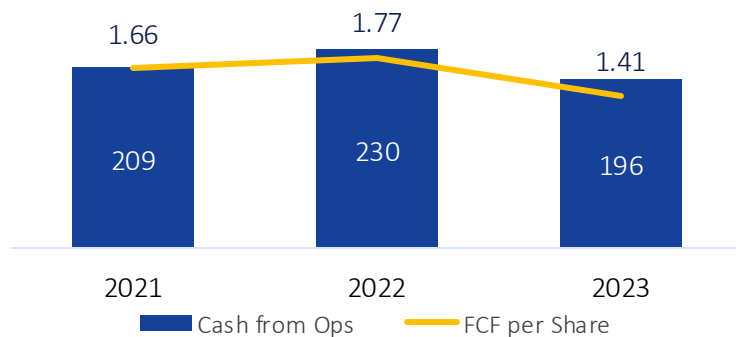


\*Consisting Primarily of Memory Interface Chips

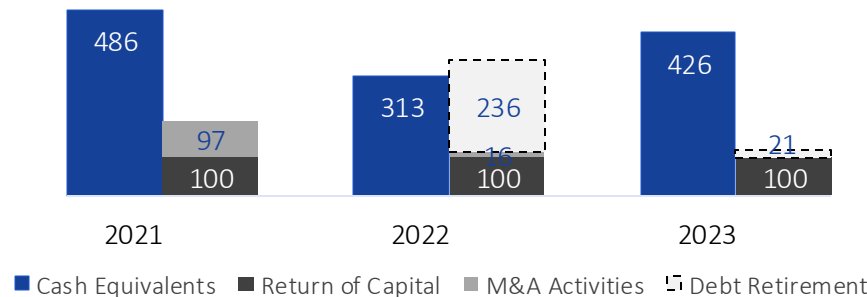
Pro Forma Operating Expenses (\$M)



Cash from Operations (\$M) & FCF per Share (\$)



Cash Equivalents & Return of Capital (\$M)



# Rambus Investment Summary



Amplified opportunity in data center as memory relevance accelerates fueled by AI



Pioneer of industry-leading chips and silicon IP enabling critical performance improvements for the continued evolution of the data center



Continued innovation feeds patent portfolio and product roadmap expansion



Focus on strategic initiatives drives financial results and profitable growth



Strong cash generation fuels growth initiatives and return of value to stockholders



# Detailed Financials



Strong cash generation fuels growth initiatives  
and return of value to stockholders

# Outstanding Cash Generation

<i>In Millions</i>	<u>ASC 606</u> Q3 2023	<u>ASC 606</u> Q4 2023	<u>ASC 606</u> Q1 2024	<u>ASC 606</u> Q2 2024	<u>ASC 606</u> Q3 2024	
Revenue	\$105.3	\$122.2	\$117.9	\$132.1	\$145.5	Quarter over quarter growth driven by product revenue
Total Operating Costs and Expenses <sup>1</sup>	\$72.9	\$71.9	\$74.2	\$77.0	\$80.5	Strategic R&D investment to support core growth initiatives
Operating Income <sup>1</sup>	\$32.4	\$50.3	\$43.7	\$55.1	\$65.1	Increase in operating income reflects revenue growth and closer alignment with cash flows from fewer fixed-fee licensing arrangements
Cash from Operations	\$51.6	\$54.8	\$39.1	\$70.4	\$62.1	Strong cash generation

<sup>1</sup>Please refer to reconciliations of non-GAAP financial measures included in this presentation and in our earnings release

# Strong Balance Sheet Supports Strategic Initiatives

<i>In Millions</i>	Q3 2023	Q4 2023	Q1 2024	Q2 2024	Q3 2024	
Total Cash & Marketable Securities	\$375.5	\$425.8	\$391.1	\$432.9	\$432.7	Driven by continued strong cash from operations Returned capital to stockholders through \$50.0M share repurchase
Total Assets	\$1,184.3	\$1,258.2	\$1,208.8	\$1,250.6	\$1,251.6	Strong balance sheet and debt free
Stockholders' Equity	\$955.6	\$1,038.1	\$991.6	\$1,028.9	\$1,039.0	
Cash from Operations	\$51.6	\$54.8	\$39.1	\$70.4	\$62.1	Sustained, predictable cash generation

# Reconciliation of Non-GAAP Financial Measures

Net Income in Millions	Q3 2023 (ASC 606)	Q4 2023 (ASC 606)	Q1 2024 (ASC 606)	Q2 2024 (ASC 606)	Q3 2024 (ASC 606)
GAAP Net Income	\$103	\$59	\$33	\$36	\$49
Adjustments:					
Stock-based compensation	\$10	\$11	\$9	\$12	\$12
Acquisition/divestiture-related costs and retention bonus expense	\$0	\$0	\$0	\$0	\$0
Amortization of acquired intangible assets	\$4	\$3	\$3	\$3	\$3
Expense on abandoned operating leases	\$0	\$0	\$0	\$0	\$0
Provision for (benefit from) income taxes	(\$4)	(\$9)	(\$9)	(\$5)	(\$5)
Change in fair value of earn-out liability	(\$6)	\$1	\$1	(\$1)	(\$5)
Restructuring and other charges	\$0	\$0	\$0	\$0	\$0
Gain on divestiture	(\$91)	\$0	\$0	\$0	\$0
Impairment of assets	\$10	\$0	\$0	\$1	\$0
Gain on sale of equity investment	\$0	(\$24)	(\$0)	\$0	\$0
<b>Non-GAAP Net Income</b>	<b>\$26</b>	<b>\$41</b>	<b>\$37</b>	<b>\$46</b>	<b>\$54</b>
Operating Income in Millions	Q3 2023 (ASC 606)	Q4 2023 (ASC 606)	Q1 2024 (ASC 606)	Q2 2024 (ASC 606)	Q3 2024 (ASC 606)
GAAP Operating Income	\$105	\$35	\$30	\$40	\$55
Adjustments:					
Stock-based compensation	\$10	\$11	\$9	\$12	\$12
Acquisition-related/divestiture costs and retention bonus expense	\$0	\$0	\$0	\$0	\$0
Amortization of aquired intangible assets	\$4	\$3	\$3	\$3	\$3
Expense on abandoned operating leases	\$0	\$0	\$0	\$0	\$0
Change in fair value of earn-out liability	(\$6)	\$1	\$1	(\$1)	(\$5)
Restructuring and other charges	\$0	\$0	\$0	\$0	\$0
Gain on divestiture	(\$91)	\$0	\$0	\$0	\$0
Impairment of assets	\$10	\$0	\$0	\$1	\$0
<b>Non-GAAP Operating Income</b>	<b>\$32</b>	<b>\$50</b>	<b>\$44</b>	<b>\$55</b>	<b>\$65</b>
Depreciation	\$7	\$6	\$6	\$6	\$7
<b>Adjusted EBITDA</b>	<b>\$39</b>	<b>\$56</b>	<b>\$50</b>	<b>\$61</b>	<b>\$72</b>

\* Tables exclude the following items which round to \$0M: Non-cash interest expense, Facility restoration costs, and Severance costs.

\*\* Certain amounts may be off \$1.0M due to rounding.



# Revenue and Licensing Billings

In Thousands	ASC 606					ASC 606			
	Q1'23	Q2'23	Q3'23	Q4'23	FY 2023	Q1'24	Q2'24	Q3'24	YTD 2024
Royalty Revenue	\$28,169	\$40,672	\$28,857	\$52,412	\$150,110	\$47,476	\$56,380	\$64,105	\$167,961
Product Revenue	\$63,775	\$54,978	\$52,181	\$53,698	\$224,632	\$50,360	\$56,692	\$66,394	\$173,446
Contract and Other Revenue	\$21,818	\$24,182	\$24,260	\$16,115	\$86,375	\$20,035	\$19,066	\$15,014	\$54,115
<b>Total</b>	<b>\$113,762</b>	<b>\$119,832</b>	<b>\$105,298</b>	<b>\$122,225</b>	<b>\$461,117</b>	<b>\$117,871</b>	<b>\$132,138</b>	<b>\$145,513</b>	<b>\$395,522</b>

In Thousands	ASC 606					ASC 606			
	Q1'23	Q2'23	Q3'23	Q4'23	FY 2023	Q1'24	Q2'24	Q3'24	YTD 2024
Royalty Revenue	\$28,169	\$40,672	\$28,857	\$52,412	\$150,110	\$47,476	\$56,380	\$64,105	\$167,961
Licensing Billings <sup>1</sup>	\$63,405	\$60,175	\$57,906	\$66,245	\$247,731	\$63,197	\$61,531	\$65,363	\$190,091
<b>Delta</b>	<b>\$35,236</b>	<b>\$19,503</b>	<b>\$29,049</b>	<b>\$13,833</b>	<b>\$97,621</b>	<b>\$15,721</b>	<b>\$5,151</b>	<b>\$1,258</b>	<b>\$22,130</b>

In Thousands	ASC 606					ASC 606			
	Q1'23	Q2'23	Q3'23	Q4'23	FY 2023	Q1'24	Q2'24	Q3'24	YTD 2024
ASC 606 Interest Income <sup>2</sup>	\$919	\$627	\$426	\$246	\$2,218	\$180	\$118	\$163	\$461

<sup>1</sup> Licensing billings is an operational metric that reflects amounts invoiced to our patent and technology licensing customers during the period, as adjusted for certain differences relating to advanced payments for variable licensing agreements.

<sup>2</sup> Interest income associated with the significant financing component of licensing agreements as a result of the adoption of ASC 606.

# GAAP to Non-GAAP Income Statement

In \$ Millions	GAAP Actual Q3'24	Non-GAAP Actual Q3'24	Delta to GAAP
Revenue	\$145.5	\$145.5	\$-
Cost of revenue	28.1	25.2	(2.9)
Research and development	41.3	37.1	(4.2)
Sales, general and administrative	26.0	18.2	(7.7)
Change in fair value of earn-out liability	(4.5)	0.0	4.5
Total operating cost and expenses	90.8	80.5	(10.4)
Operating income	54.7	65.1	10.4
Interest and other income (expense), net	4.3	4.3	0.0
Income before income taxes	59.0	69.4	10.4
Provision for income taxes <sup>1</sup>	10.4	15.3	4.9
Net income	\$48.7	\$54.1	\$5.5

<sup>1</sup> Assumes a non-GAAP tax rate of 22%.  
Certain amounts may be off \$0.1M due to rounding.

# Product Overview



Industry-leading Chips and Silicon IP

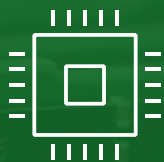
# Chips

Providing memory bandwidth and capacity to unleash the power of CPUs and accelerators

Chips

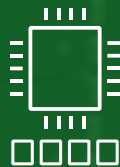
Silicon IP

Innovations



## Memory Interface Chips

- DDR5 Server Chipset
- DDR5 Client Chipset
- DDR4 Server Chipset



## CXL Memory Initiative



# DDR5 RDIMM Chipset

## Industry-leading Performance and Margin

- Compliant with latest JEDEC spec up to 8000 MT/s
- Wide margin IO design with advanced programmability
- Exceeds JEDEC reliability requirements

## Optimized Power

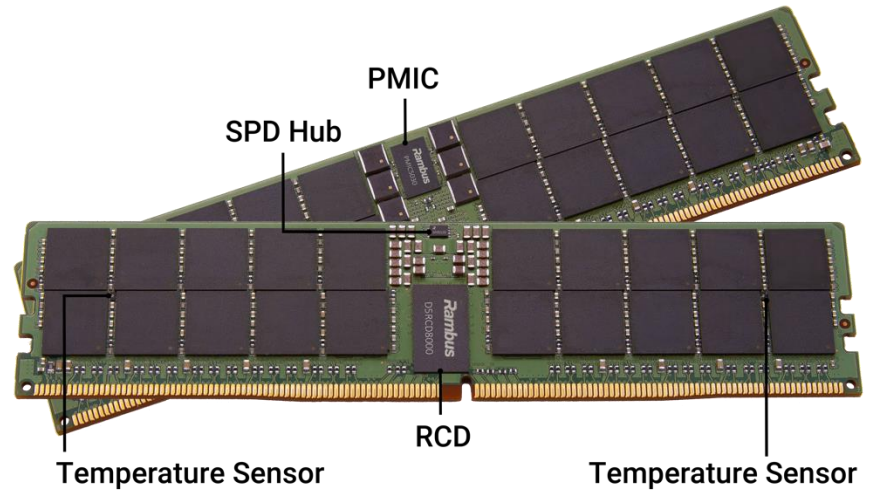
- Frequency-based power optimization

## Best-in-class Debug and Serviceability

- Integrated tools for bring-up and debug
- Works out of the box with default system BIOS

## Use Cases

- Server RDIMM 8000, 7200, 6400, 5600, 4800  
(RCD, PMIC, SPD Hub, Temp. Sensors x2)



*DDR5 RDIMMs with Rambus Memory Interface chips: Registering Clock Driver, PMIC, SPD Hub and Temperature Sensor ICs*

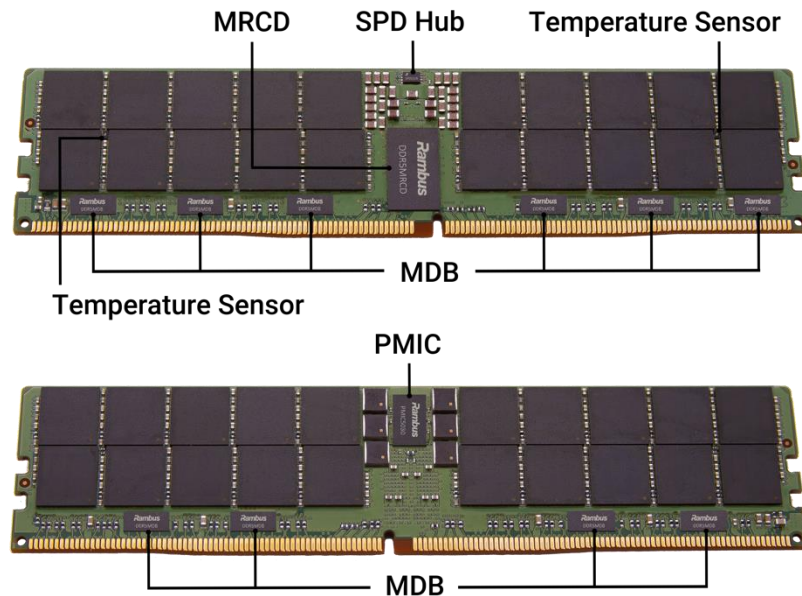
# Industry-first DDR5 MRDIMM 12800 Chipset

## Leading Performance

- Supports industry-standard MRDIMM at 12800 MT/s
- Full chipset solution, featuring:
  - Multiplexed Registering Clock Driver (MRCD)
  - Multiplexed Data Buffer (MDB)
  - PMIC5030
- Advanced clocking, control and power management
- Supports standard and tall (high capacity) form factors
- Common architecture with RDIMM 8000 to allow flexibility and scalability in server memory configuration
- Best-in-class reliability and serviceability

## Use Case

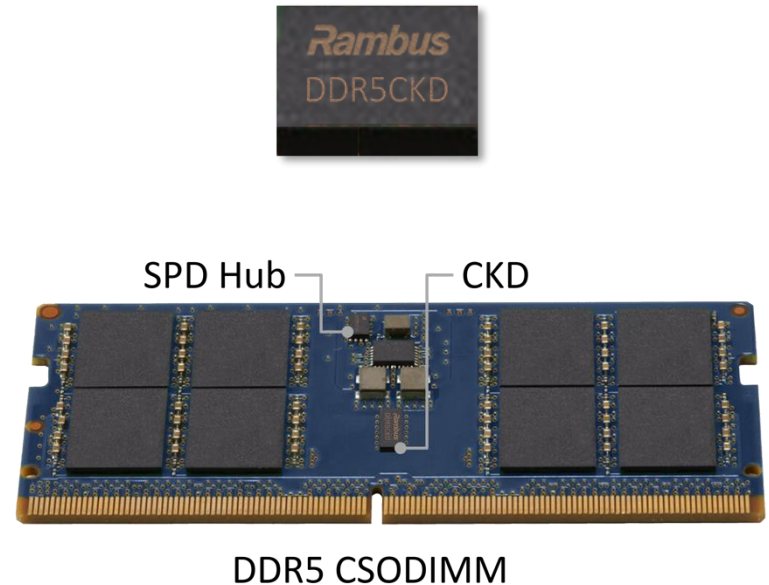
- Server MRDIMM 12800 (MRCD, MDB x10, PMIC5030, SPD Hub, Temp. Sensors x2)



*DDR5 MRDIMM 12800 Chipset:  
MRCD, MDB, PMIC, SPD Hub and Temperature Sensor ICs*

# Rambus Expands Industry-Leading Memory Interface Chip Offering to High-Performance PCs with DDR5 Client Clock Driver (CKD)

- Leverages Rambus broad server memory expertise to address the growing requirements of AI, gaming and content creation in desktop and notebook PCs
- New client product offering includes DDR5 Client Clock Driver and SPD Hub
- Enables state-of-the-art DDR5 client DIMMs with operation up to 7200 MT/s



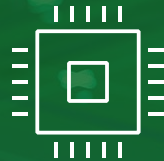
# Silicon IP

Enabling accelerated computing  
with high-performance interfaces  
and hardware-level security

Chips

Silicon IP

Innovations



## Interface IP

- PCI Express
- CXL
- HBM
- GDDR



## Security IP

- Root of Trust
- MACsec
- IPsec
- IME

# Interface IP: Memory Interface and Interconnect IP

	Memory Controllers						Interconnect Controllers					Video Compression	
	DDR	LPDDR	GDDR	HBM			CXL		PCI Express		MIPI	VESA	FEC
Application Focus	4	4X/5X/5T	6/7	2/2E	3/3E	4	2.0	3.1	6.2	7.0	CSI-2/ DSI-2	DSC/ VDC-M	DP/ HDMI
Data Center													
AI/Edge													
Automotive											★	★	★
Government & Defense													
IoT													
Availability	Now	Now	Now	Now	Now	Now	Now	Now	Now	Now	Now	Now	Now

# Security IP: Protecting Data at Rest, in Motion, and in Use

	Root of Trust		Network Security		Cipher Engines	Crypto Cores		Provisioning	
Application Focus	Programmable	Firmware Controlled	MACsec	IPsec TLS	IME	Crypto	TRNG	Infrastructure	Key Management
Data Center		N/A							
AI/Edge									
Automotive				N/A					
Government & Defense									
IoT	N/A		N/A		N/A				
Availability	Now	Now	Now	Now	Now	Now	Now	Now	Now



# Rambus Labs

Enabling next-generation data centers through innovation, research and development

Chips

Silicon IP

Innovations



Next-Gen Memory



Post-Quantum  
Computing Security

# Key Areas of Focus for Rambus Labs



Next-Gen Memory  
Architectures and  
Performance



Secure and Reliable  
Memory Systems

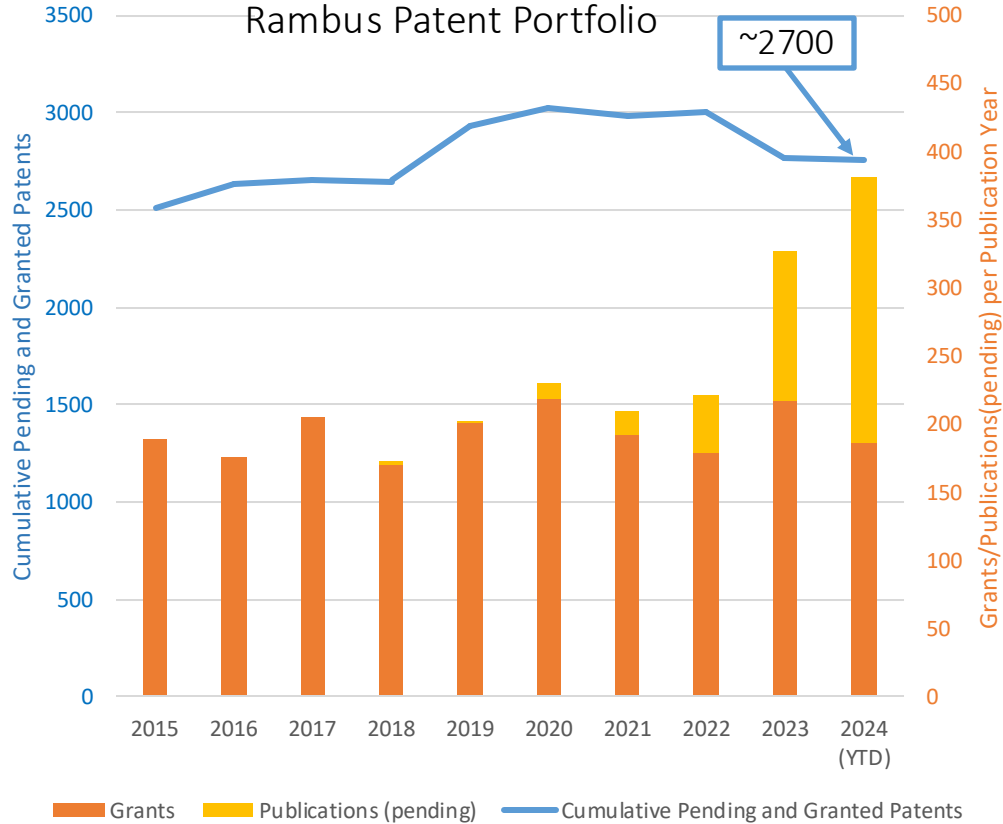


Security for AI/ML  
and PQC



Strategic Customer &  
Product Roadmap  
Support

# Rambus Patent Portfolio Overview



Source: Patsnap, Rambus

## Industry Recognition of Rambus Patents



Source: Innography, patent citations

- Fundamental R&D feeds product development
- Relevant portfolio regularly cited by major industry players
- Supports predictable licensing base and sustained cash generation

Thank you

