Forward-looking Statements

Safe Harbor | Disclaimers

This presentation contains forward-looking statements within the meaning of federal securities laws, including statements regarding expectations for: our business outlook, financial condition and financial and operational performance; demand trends, market conditions and market opportunities; our capital expenditures and capital allocation priorities; and the availability and performance of our future products and technologies. These forward-looking statements are based on management's current expectations and are subject to risks and uncertainties that could cause actual results to differ materially from those expressed or implied in the forward-looking statements.

Important risks and uncertainties include future responses to and effects of the COVID-19 pandemic; volatility in global economic conditions; impact of business and market conditions; impact of competitive products and pricing; our development and introduction of products based on new technologies and expansion into new data storage markets; risks associated with cost saving initiatives, restructurings, acquisitions, divestitures, mergers, joint ventures and our strategic relationships; difficulties or delays in manufacturing or other supply chain disruptions; hiring and retention of key employees; our substantial level of debt and other financial obligations; changes to our relationships with key customers; disruptions in operations from cyberattacks or other system security risks; actions by competitors; risks associated with compliance with changing legal and regulatory requirements and the outcome of legal proceedings; and other risks and uncertainties listed in our filings with the Securities and Exchange Commission (the “SEC”) and available on the SEC's website at www.sec.gov, including our Form 10-K filed with the SEC on August 27, 2021, to which your attention is directed. You should not place undue reliance on these forward-looking statements, which speak only as of the date hereof, and we undertake no obligation to update or revise these forward-looking statements to reflect new information or events, except as required by law.

This presentation includes references to non-GAAP financial measures. Reconciliations of the differences between the non-GAAP measures provided in this presentation to the comparable GAAP financial measures are included in the appendices and in the Investor Relations section of our website. We have not fully reconciled our non-GAAP financial measure projections to the most directly comparable GAAP measures because material items that impact these measures are not in our control and/or cannot be reasonably predicted. Accordingly, a full reconciliation of the non-GAAP financial measure projections to the corresponding GAAP measures is not available without unreasonable effort.

Western Digital

Investor Day

May 10, 2022 \\ San Francisco, CA

What's Next
Western Digital.

Technology Strategy and Roadmaps

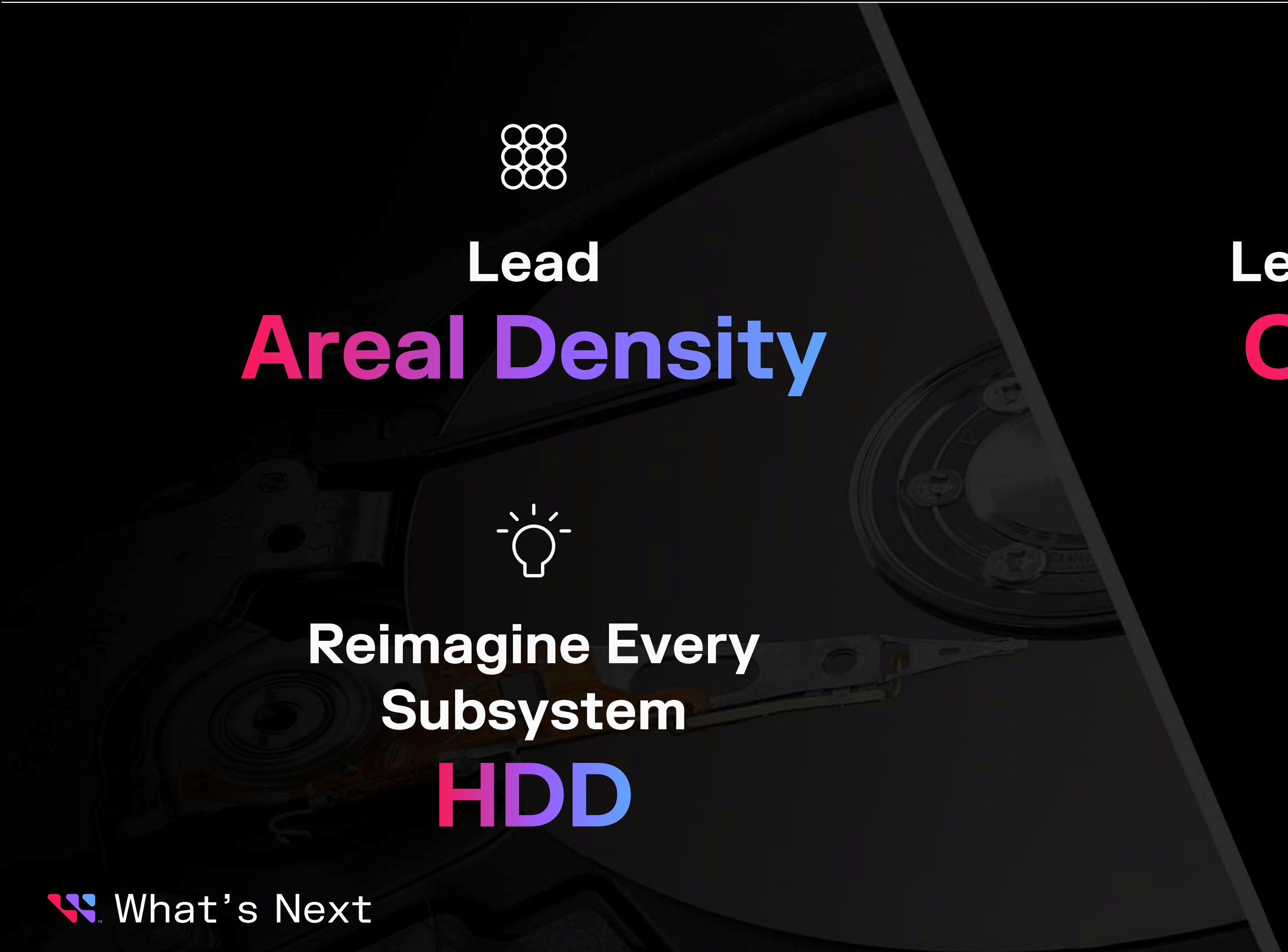
Siva Sivaram
President of Technology & Strategy
Western Digital

What's Next
Western Digital.

01

Technology and Development Strategy

Technology Development Strategy



Lead

Areal Density

Reimagine Every Subsystem

HDD

Leverage High Performance

Charge Trap Cell

Drive Capital Efficient Bit Growth

Flash

A Well Directed Research Engine

In-Depth Know-How in Magnetics and Solid-State Memories

~14K Active Patents

Unique Technology Solutions Arising from Targeted Development Strategies

OptiNAND

UltraSMR and ZNS (Zone Named Spaces)

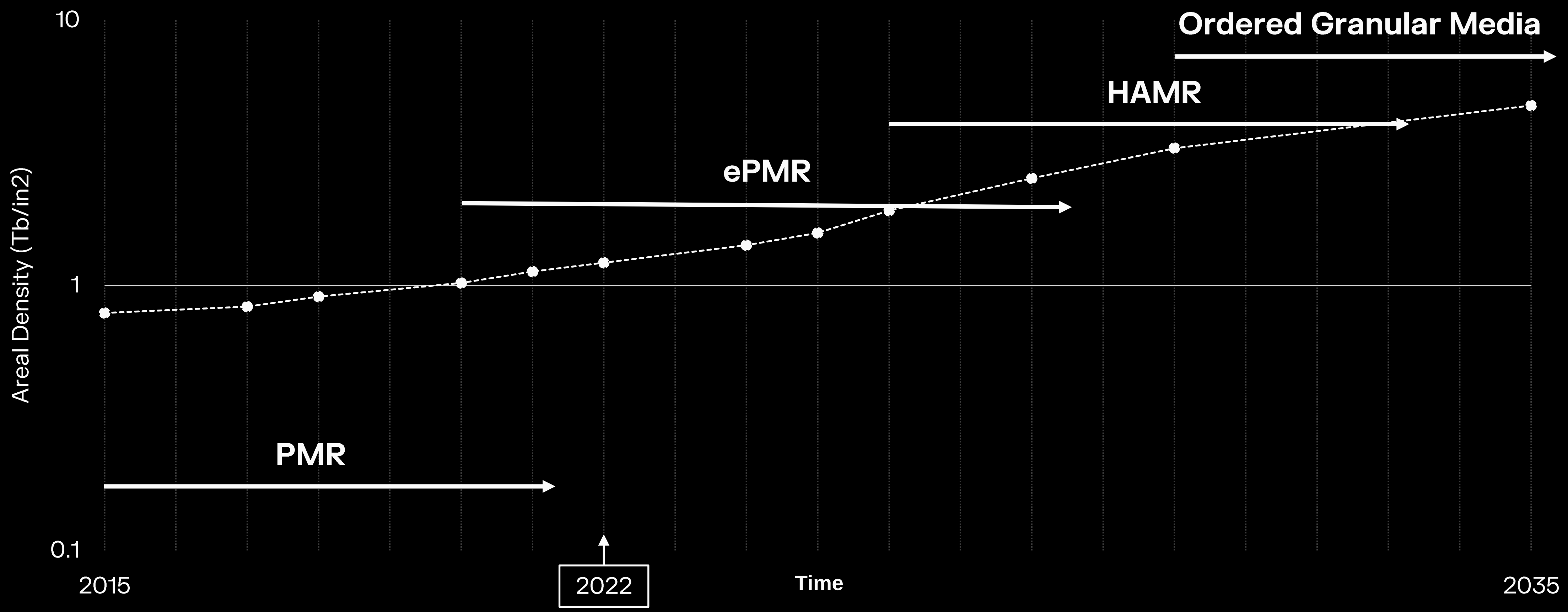
Revolutionary New Products

What's Next
Western
Digital

02

HDD Technology Direction

Areal Density Leadership

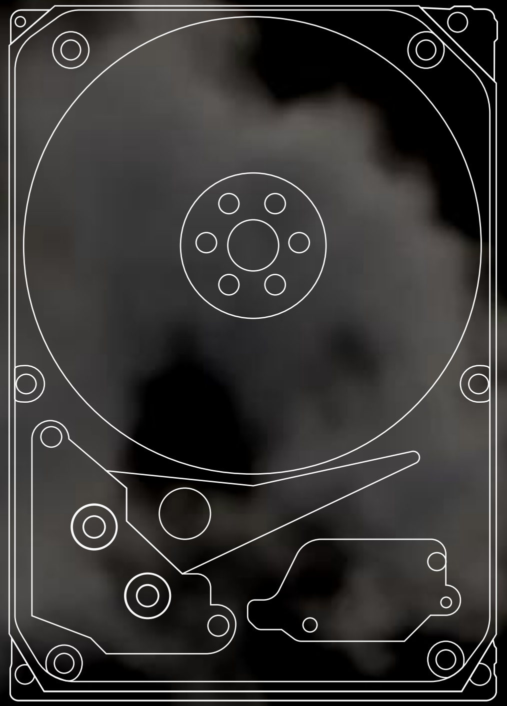


ePMR Provides Multi-Generational Leadership

What's Next

SOURCE: WD INTERNAL ESTIMATE

HDD is Innovating for the Cloud



Storage Density

Access Time

Reliability

Total Cost of Ownership

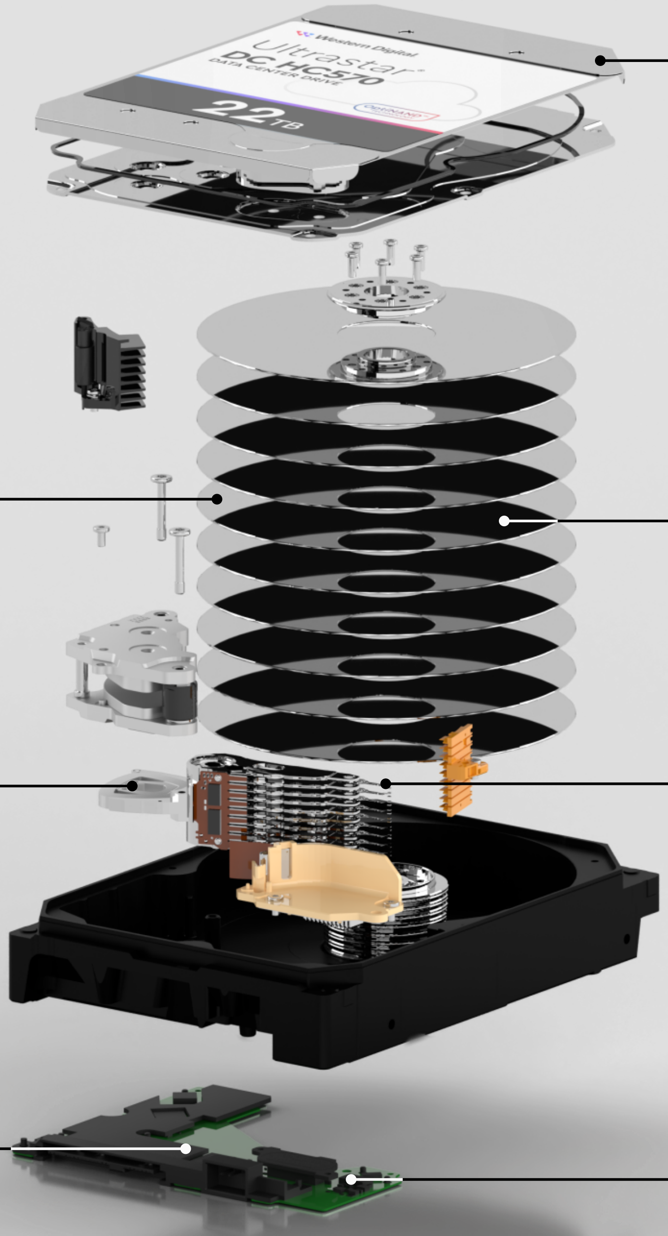
Capacity

Sustainability

Proximity to the Edge

Performance

Reimagining the HDD



Helium Seal

Recording Format
CMR | SMR | UltraSMR

Magnetic Media
Ultra-Thin AlMg Substrates

Micro-Positioning
Single Stage | Dual Stage | Triple Stage Actuation

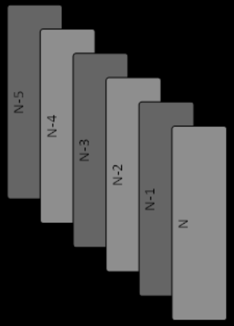
Recording Heads
PMR | ePMR

Access Density
1 Head Active at a Time | 2 Heads Active

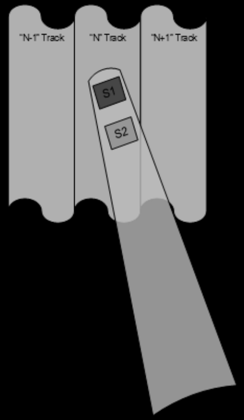
SOC and Flash
DRAM Only | OptiNAND

UltraSMR

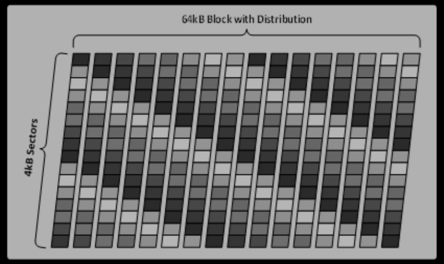
=



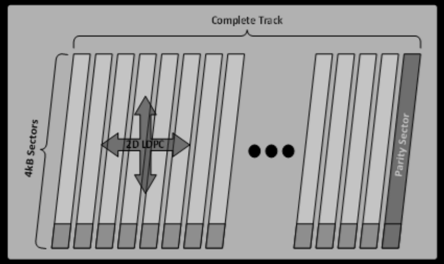
SMR System



TDMR



Distributed Sector



Soft Track ECC

Enabled by OptiNAND

The Only Shipping 22TB Drive

Shipping

22TB

Drives to Select Customers

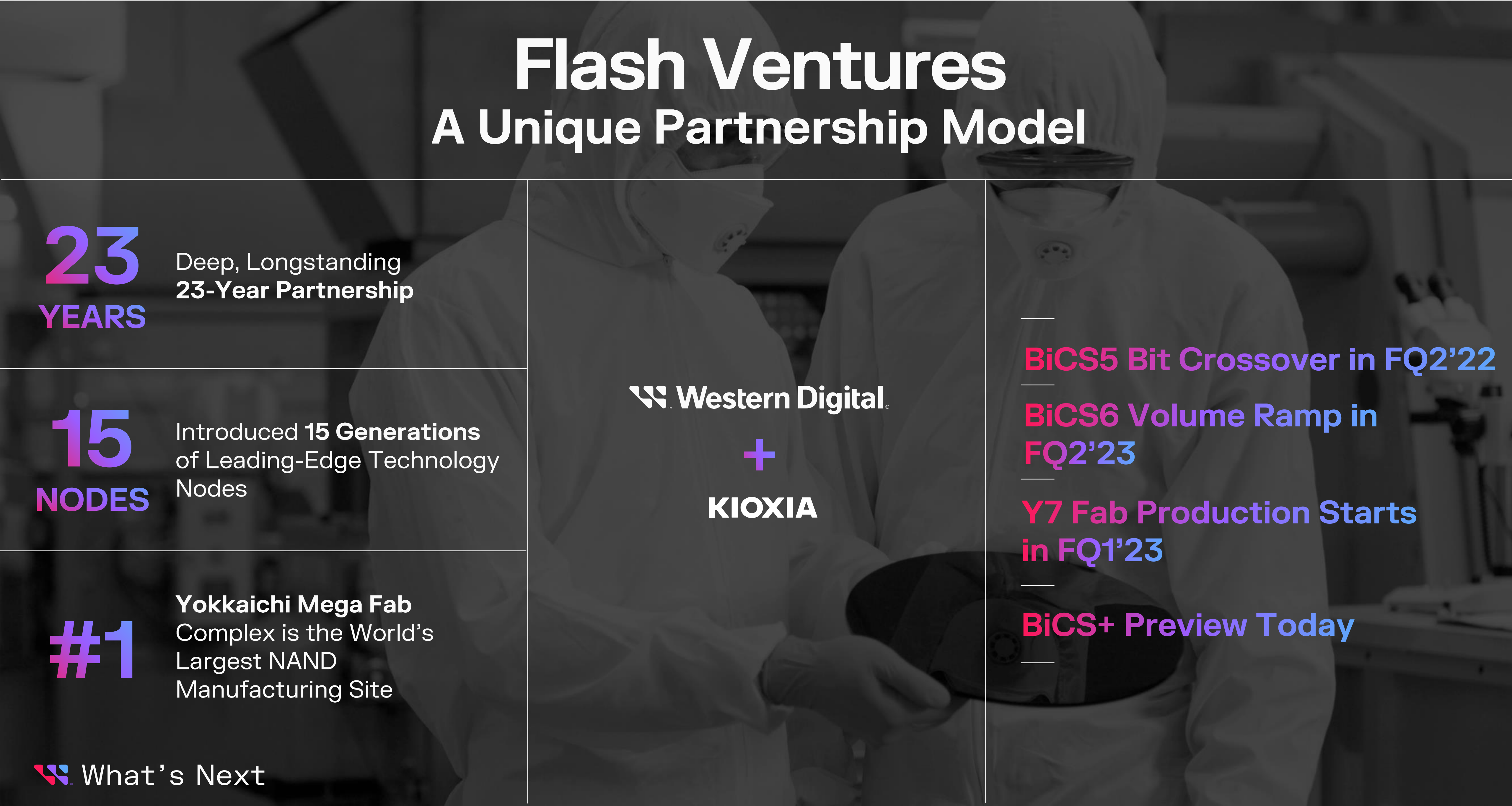
Sampling

26TB

UltraSMR Drives

03

Flash Technology



Flash Ventures

A Unique Partnership Model

23 YEARS

Deep, Longstanding
23-Year Partnership

15 NODES

Introduced **15 Generations** of Leading-Edge Technology Nodes

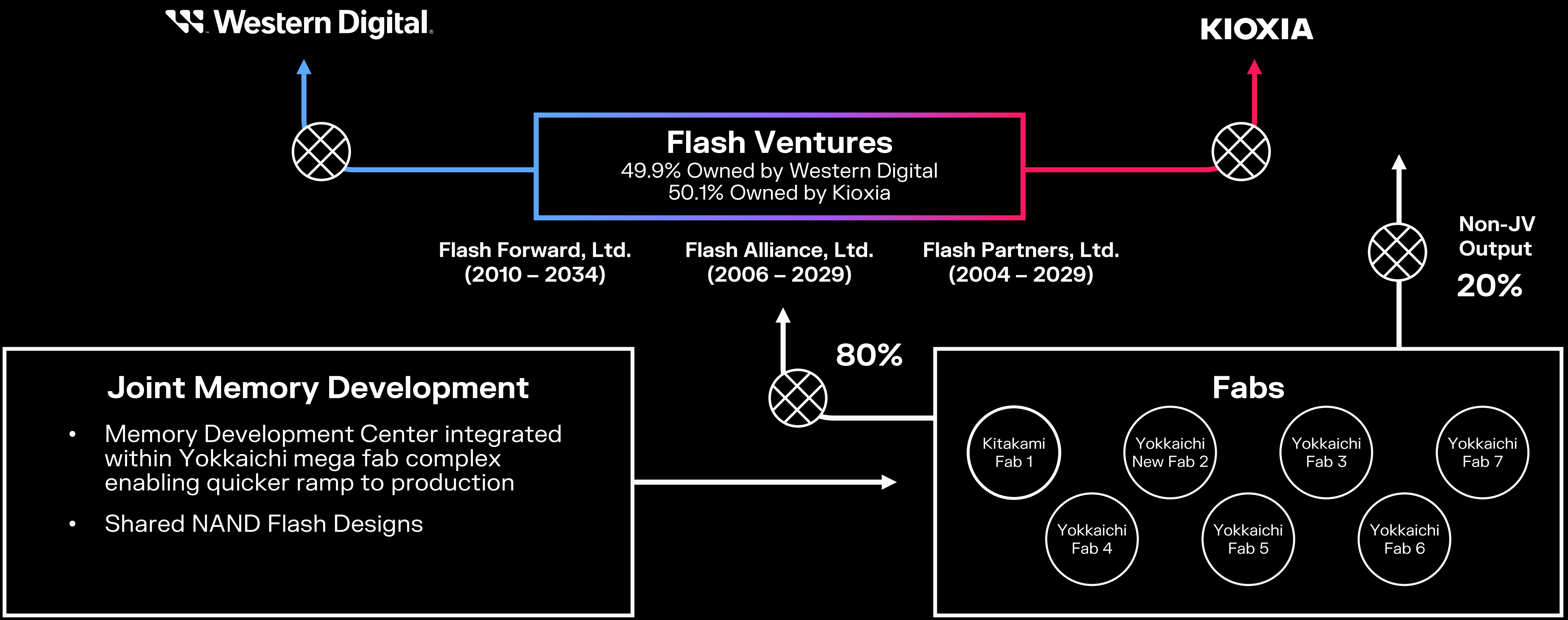
#1

Yokkaichi Mega Fab Complex is the World's Largest NAND Manufacturing Site

Western Digital
+
KIOXIA

- BiCS5 Bit Crossover in FQ2'22
- BiCS6 Volume Ramp in FQ2'23
- Y7 Fab Production Starts in FQ1'23
- BiCS+ Preview Today

Joint Venture Operational Framework



Western Digital

KIOXIA

Flash Ventures

49.9% Owned by Western Digital

50.1% Owned by Kioxia

Flash Forward, Ltd.
(2010 – 2034)

Flash Alliance, Ltd.
(2006 – 2029)

Flash Partners, Ltd.
(2004 – 2029)

Non-JV Output

20%

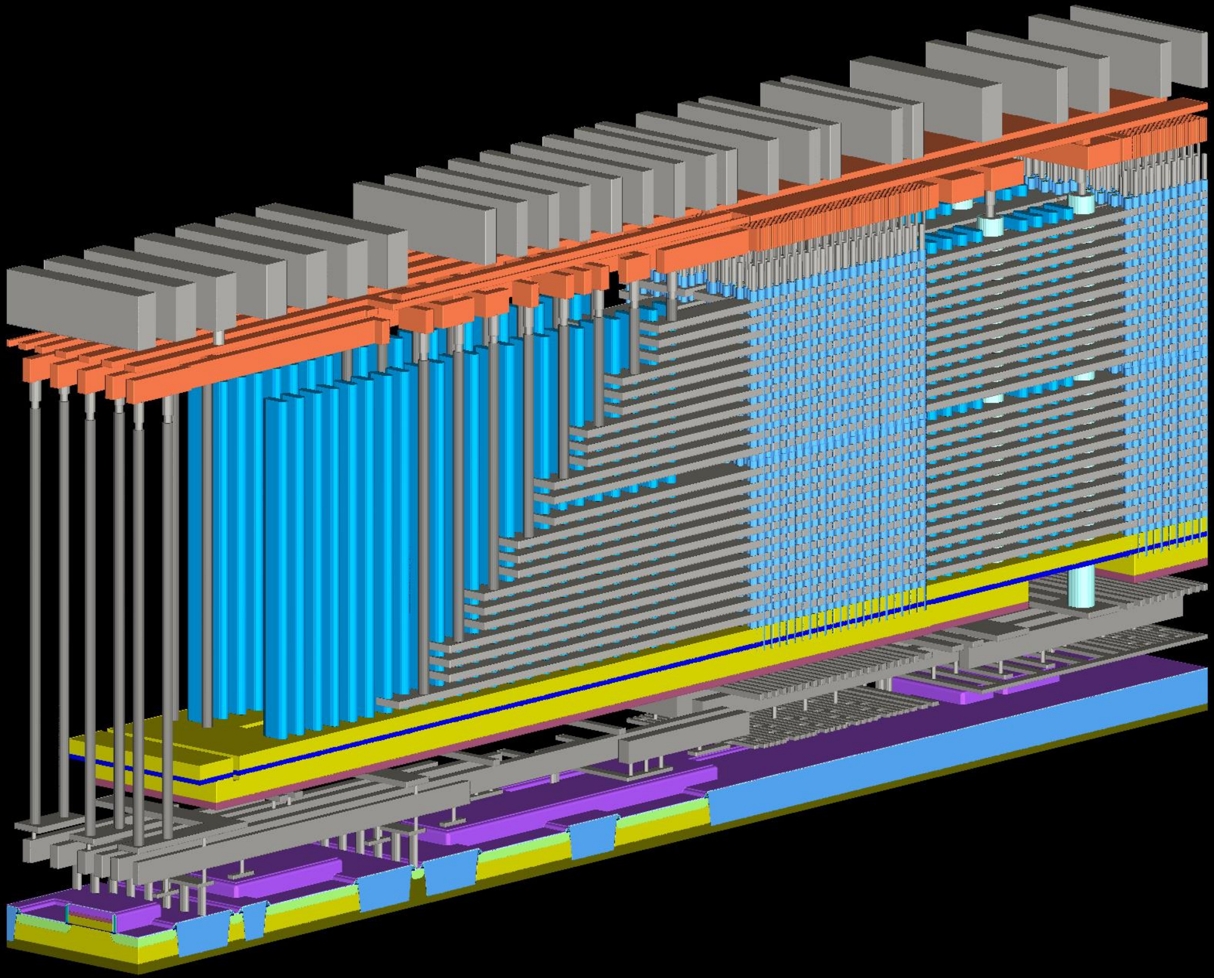
80%

Joint Memory Development

- Memory Development Center integrated within Yokkaichi mega fab complex enabling quicker ramp to production
- Shared NAND Flash Designs

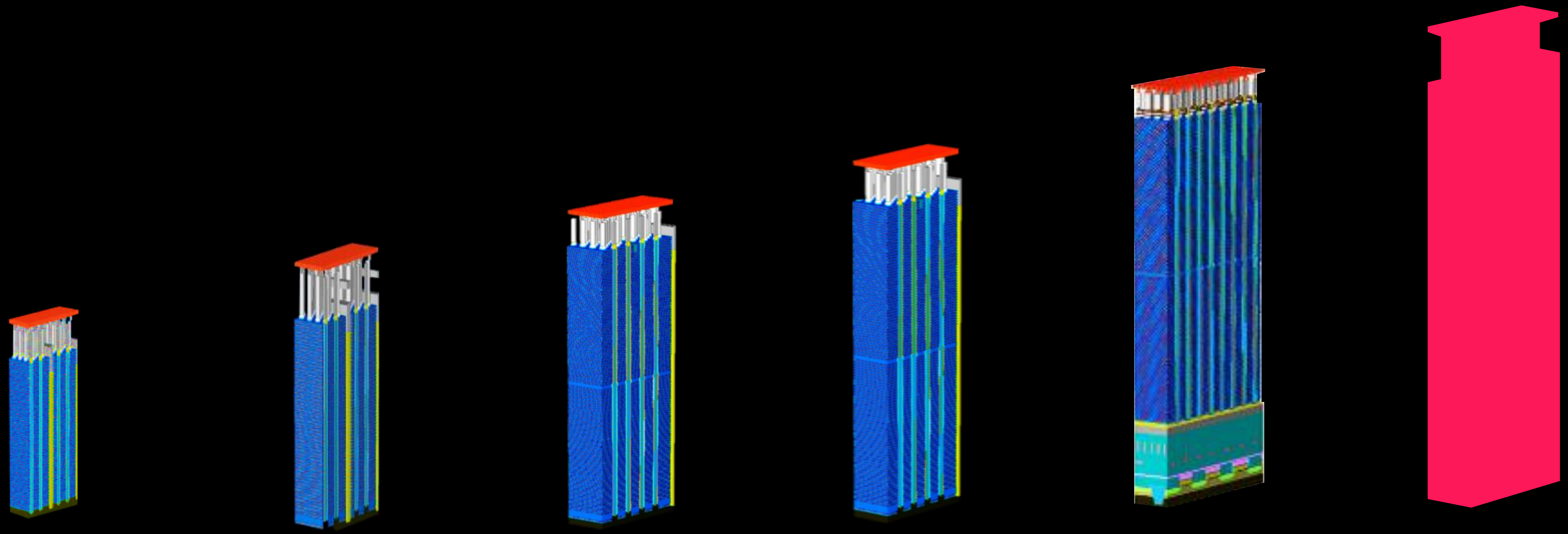
Fabs

- Kitakami Fab 1
- Yokkaichi New Fab 2
- Yokkaichi Fab 3
- Yokkaichi Fab 7
- Yokkaichi Fab 4
- Yokkaichi Fab 5
- Yokkaichi Fab 6



20 Years of NAND Innovation

NAND Technology Staging



48-Layer
(BiCS2)
2016

64-Layer
(BiCS3)
2017

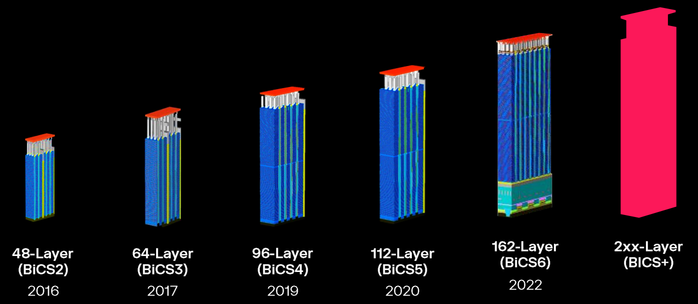
96-Layer
(BiCS4)
2019

112-Layer
(BiCS5)
2020

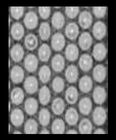
162-Layer
(BiCS6)
2022

2xx-Layer
(BICS+)

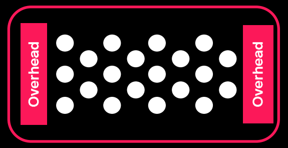
NAND Technology Staging



Lateral Scaling

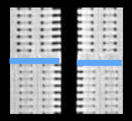


Memory Hole Density

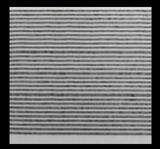


Staggering & Overhead Reduction

Vertical Scaling

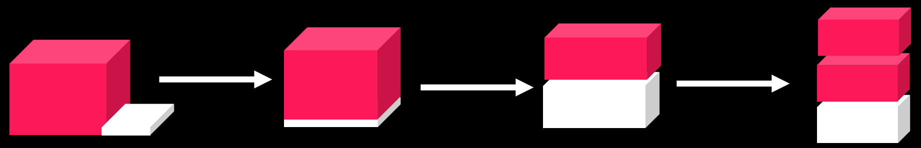


Multi-Tiered Memory Hole

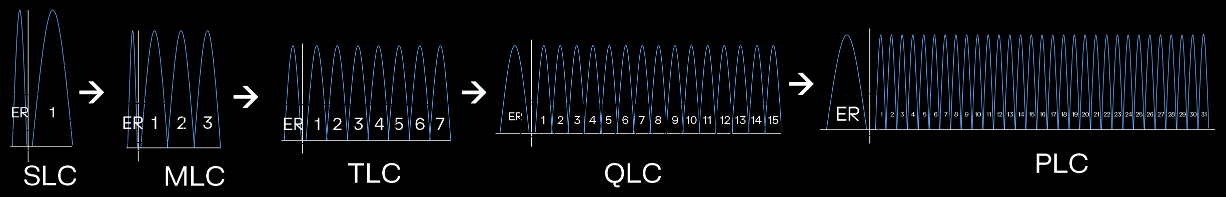


Thin & Low Resistive Memory Layers

Architecture Scaling



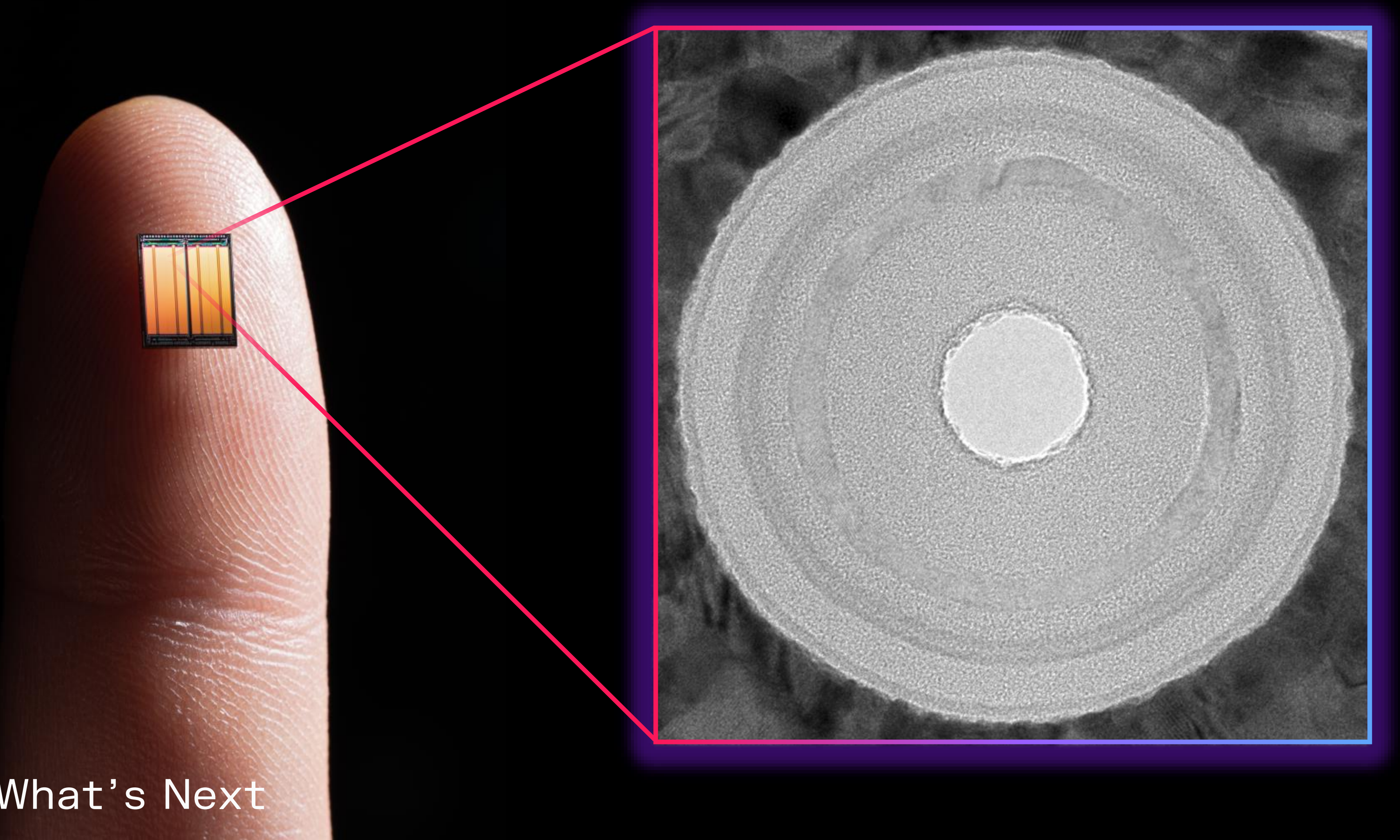
Logical Scaling



What's Next

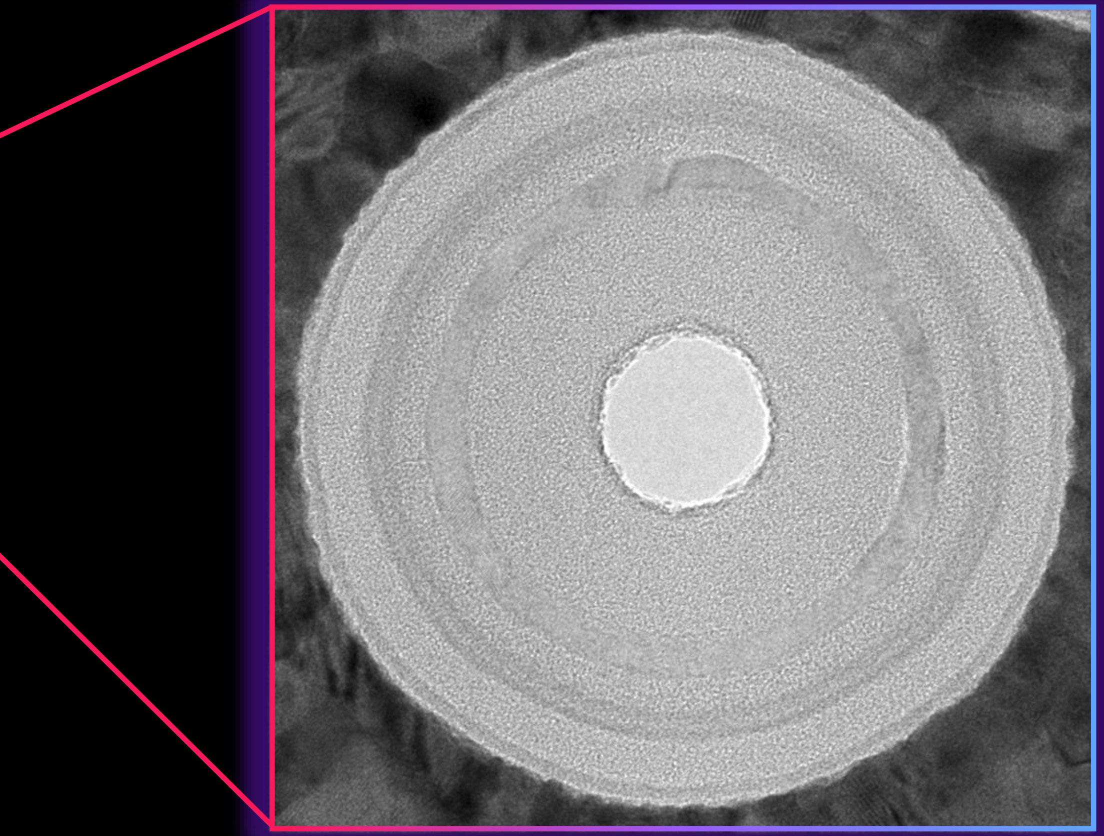
World’s Best Charge Trap Cell

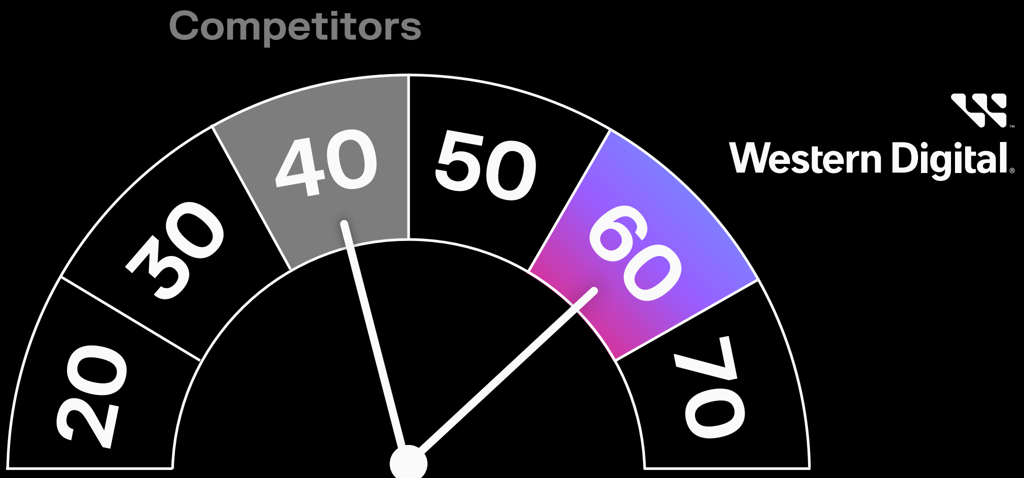
Top View



World's Best Charge Trap Cell

Top View



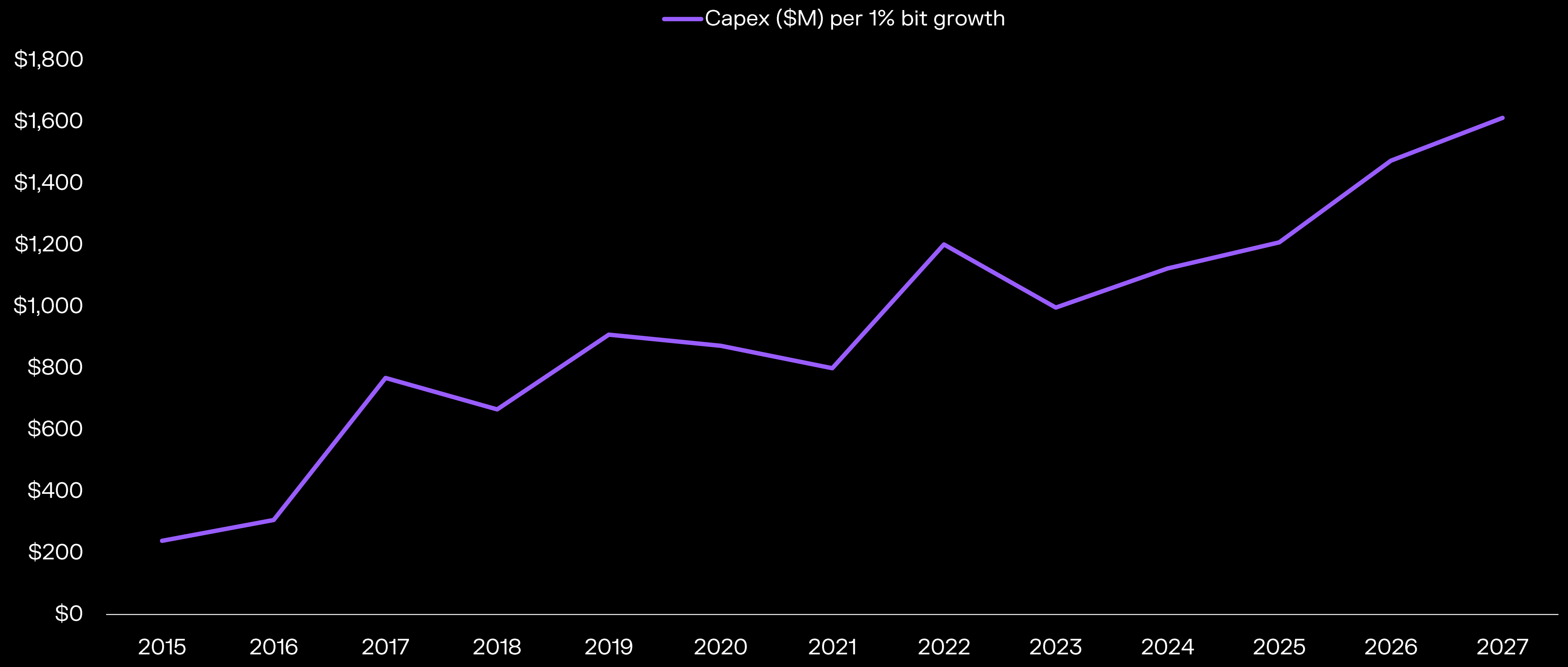


Program Performance

MB/s

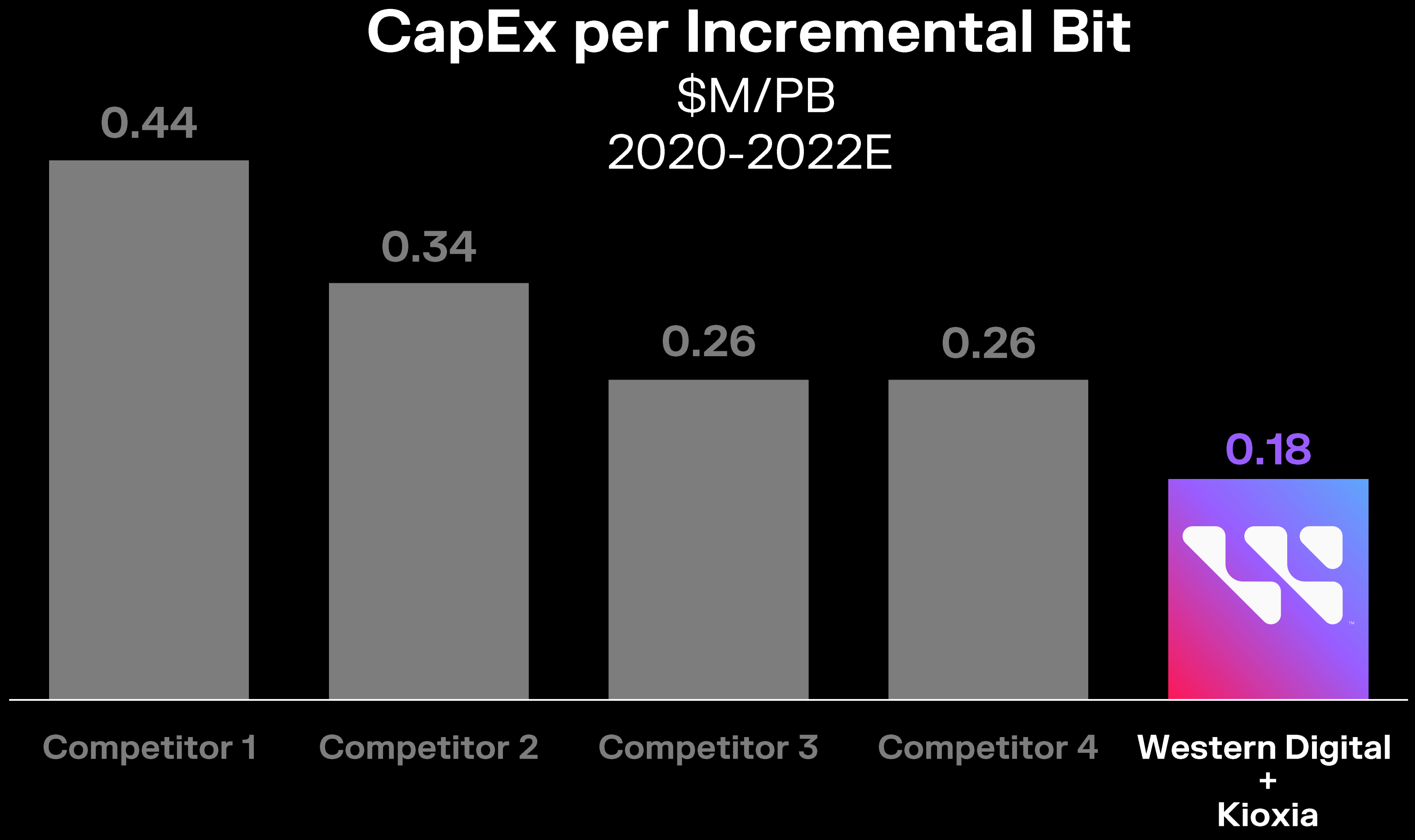
SOURCE: INTERNATIONAL SOLID-STATE CIRCUITS CONFERENCE 2022

Increasing NAND Industry Capital Intensity



SOURCE: YOLE NAND MARKET MONITOR CQ1'22

Industry's Best Capital Efficiency

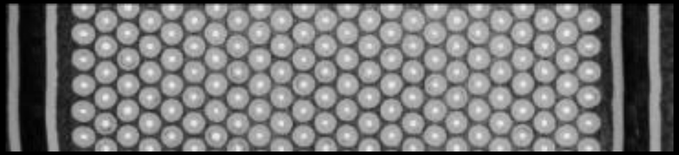


What's Next

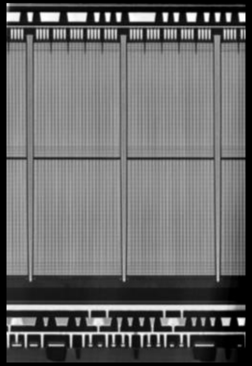
SOURCE: YOLE CQ1'22 UPDATE

Focus on Bit Density Leadership

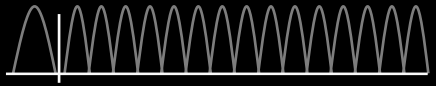
Lateral Scaling



Vertical Scaling (VS)



Logical Scaling



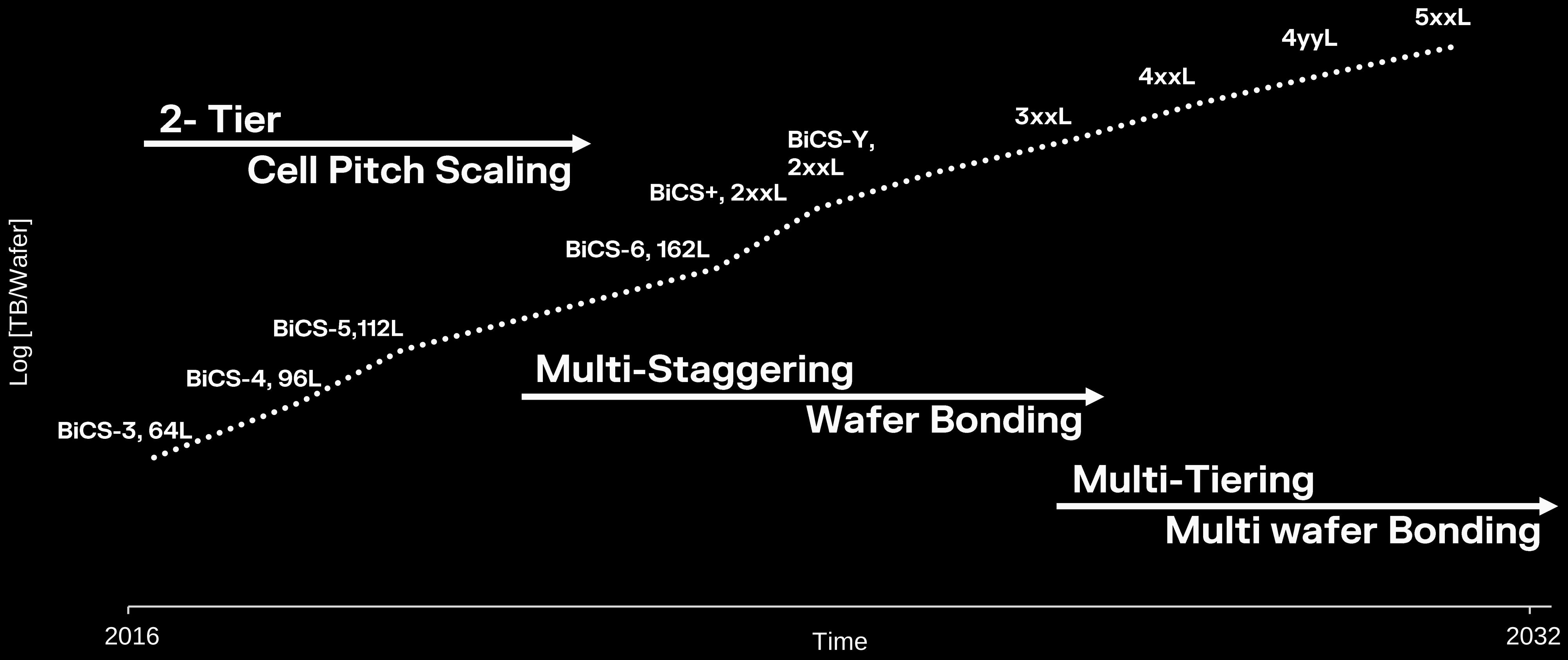
Metric	Western Digital	Competitor 1	Competitor 2
Layer	**162L**	176L	176L
Die Size (mm^2)	**68**	69.6*	69.3

* Calculated from published bit density data

Die Capacity: 1Tb X4
Single Wafer Capacity : 100 TB

SOURCE: INTERNATIONAL SOLID-STATE CIRCUITS CONFERENCE 2022

Flash Memory Technology Roadmap



SOURCE: WD INTERNAL ESTIMATE

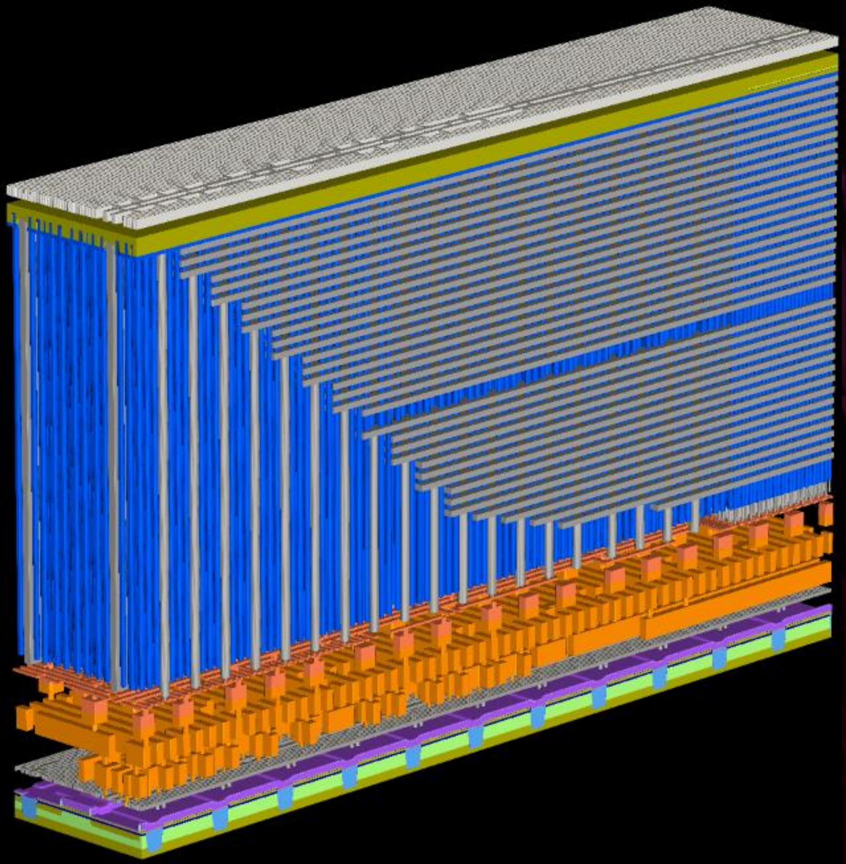
What's Next
Western
Digital

04

BiCS+

BiCS+

Engineered for Datacenter Workloads



↑+55%

Bit Growth Per Wafer

COMPARED BiCS6

↑+60%

Transfer Speed

OVER BiCS6

↑+15%

Program Bandwidth

OVER BiCS6

SOURCE: WD INTERNAL ESTIMATE

Key Takeaways

#1 HDD

Leader in Areal Density with First 22TB CMR Drive Shipments & 26TB UltraSMR Drive Sampling

#1 Flash

Industry Leading Roadmap with the Best Capital Efficiency

Revolutionary Data Center Products on the Horizon

Western Digital®

Create What's Next