Kioxia
Corporate Strategy Meeting

Kioxia's Medium- to Long-Term Growth Strategy in the Age of AI

Kioxia Holdings Corporation
June 5th, 2025

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Agenda

1. Our Role in the Generative AI Revolution	**Nobuo Hayasaka** President and CEO
2. Flash Memory Market Growth and Our Long-Term Financial Model	**Junichiro Yaguchi** Managing Executive Officer, CSO
3. Storage Strategy for Generative AI	**Masashi Yokotsuka** Managing Executive officer Vice president, SSD div.*
4. Our Leadership in Flash Memory Technology	**Hiroo Oota** Executive Vice President and Executive Officer
5. Manufacturing and Capital Investment Strategy	**Tomoharu Watanabe** Executive Vice President and Executive Officer
6. Q&A	

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※ Managing Executive officer and Vice president, SSD div. of Kioxia corporation

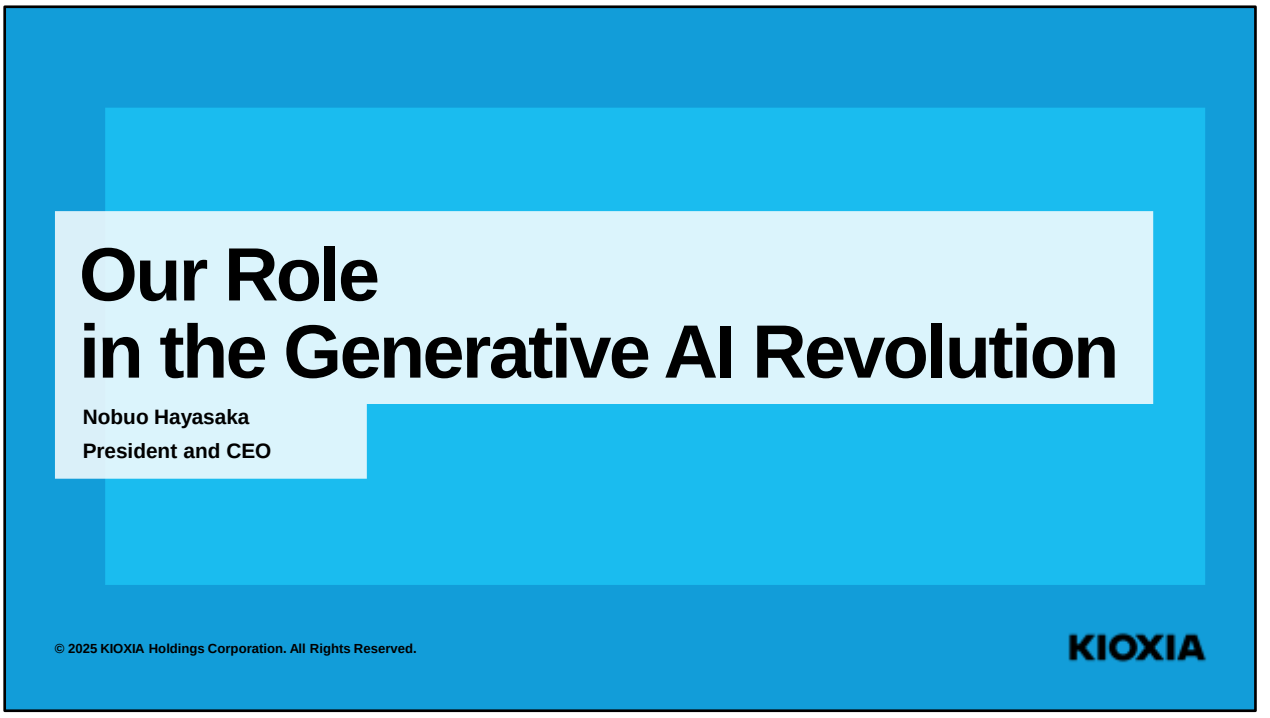
Disclaimer

Forward-looking statements included in this presentation are prepared based on our expectations and projections in light of the information currently available to us, which involve various risks and uncertainties (including, but not limited to, economic trends, market demand and the highly competitive semiconductor industry). Such risks and uncertainties may cause our actual results to be materially different from any future results expressed or implied by these forward-looking statements. We undertake no obligation to update any forward-looking statement included herein.

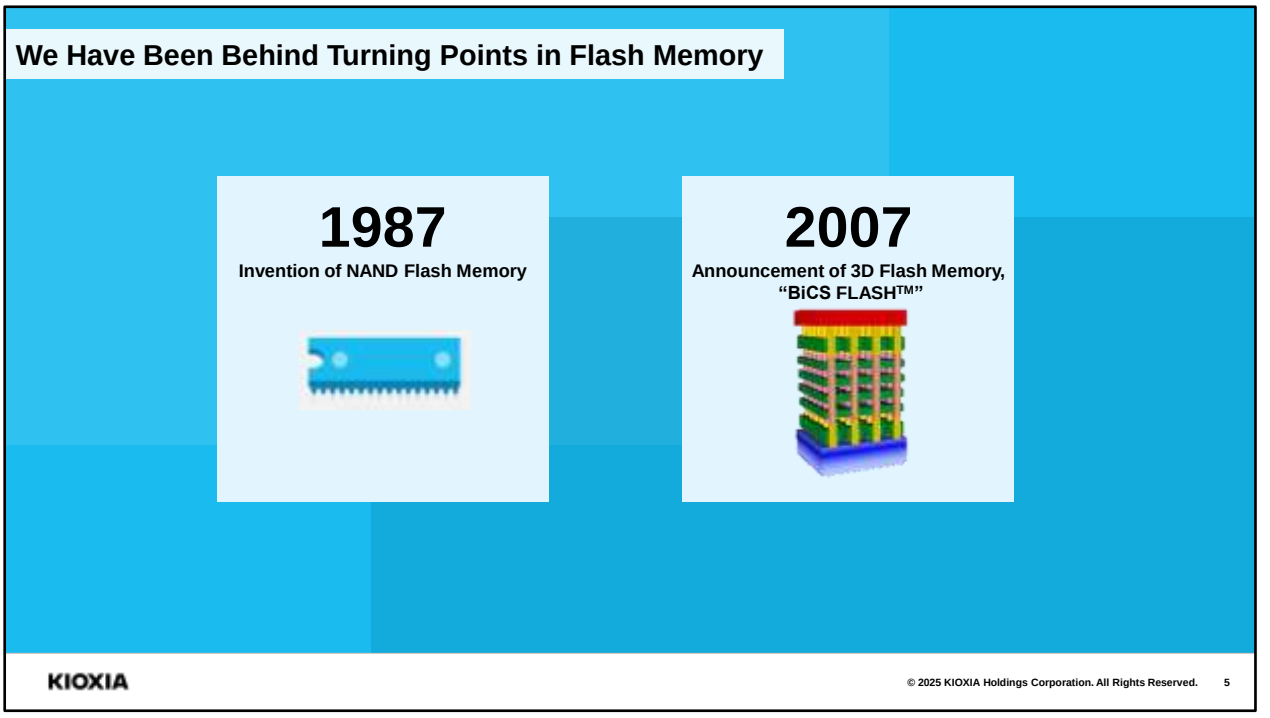
The information and projections regarding the flash memory industry included in this presentation are derived from information currently available to us. Whilst this presentation is provided in good faith, it does not purport to be comprehensive and has not been independently verified. We make no representations with respect to such information and projections.

The long-term financial model in this presentation material is neither a financial forecast nor a projection of future results. The long-term financial model contains forward-looking statements, which represent our expectations if a set of assumptions (including those regarding future market trends) that we believe are reasonable prove to be true, in the absence of other unanticipated factors. Such assumptions are based on currently available information only. We cannot guarantee that they would not differ from actual results in the future, which could be caused by a variety of factors, such as supply chain disruptions, material suspensions of operations at our production plants, rapid and sharp changes in financial market conditions, and changes in governmental policies with respect to the semiconductor industry. Nothing in this presentation material should be regarded as a representation by any person that the KPIs in the long-term financial model will be achieved.

This presentation includes internal measures which our management relies upon in making decisions (the "Non-GAAP Financial Measures") that differ from financial measures prepared in accordance with International Financial Reporting Standards ("IFRS"). The Non-GAAP Financial Measures, which are IFRS measures plus adjustments made for non-recurring items, have not been audited or reviewed by auditors. Therefore, such Non-GAAP Financial Measures may not accurately reflect our financial condition or operating results.



I'm Nobuo Hayasaka, President and CEO of Kioxia Holdings Corporation. Thank you for joining us today.
I would like to begin by talking about our mission in the era of data utilization, centered on generative AI and the direction we aim to take in the future.



The starting point of our business is NAND flash memory, which we invented in 1987. NAND has contributed to the evolution of electronic devices since the early 2000s and has been used in a wide variety of devices as a result of its ability to retain data even when the power is turned off.
In addition to the planar shrink technology that met the demand for large capacity memory, we achieved a technological breakthrough in the development of further high capacity NAND with the development of BiCS Flash – a three-dimensional flash memory with vertically stacked cells.

Kioxia's Achievements in FY2024

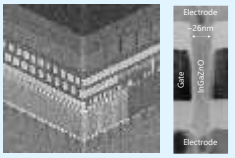
July 24

Industry's largest capacity

Sample shipment

Announced the 8th Generation BiCS FLASH™ 2Tb QLC Industry's largest capacity Sample shipment

December 24



275Mbit 4F2 DRAM array and OSFET

@2024 IEEE Conference presentation

New DRAM technology using oxide semiconductors, etc. (OCTRAM)

February 25

332Layer BiCS FLASH™

@2025 IEEE Conference presentation

Presentation on next generation 3D Flash memory technology Conference presentation

March 25

Sample shipment

Development of high-capacity 122.88 TB enterprise SSD

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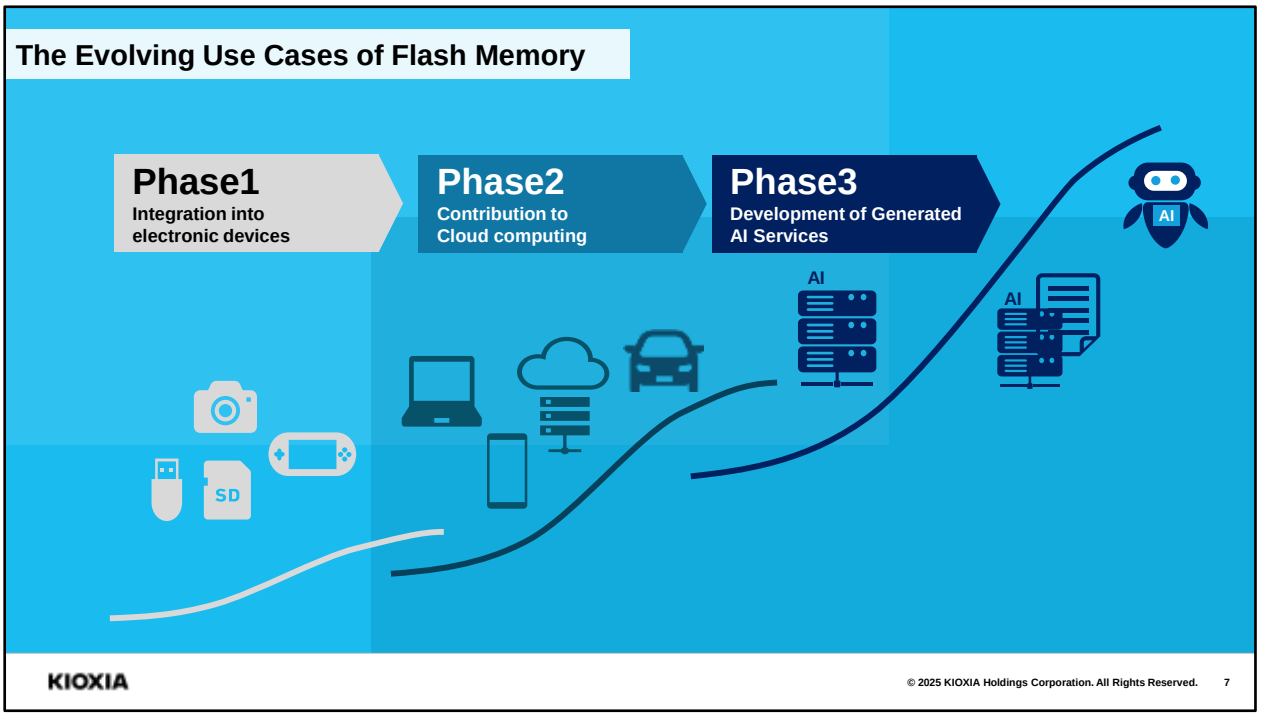
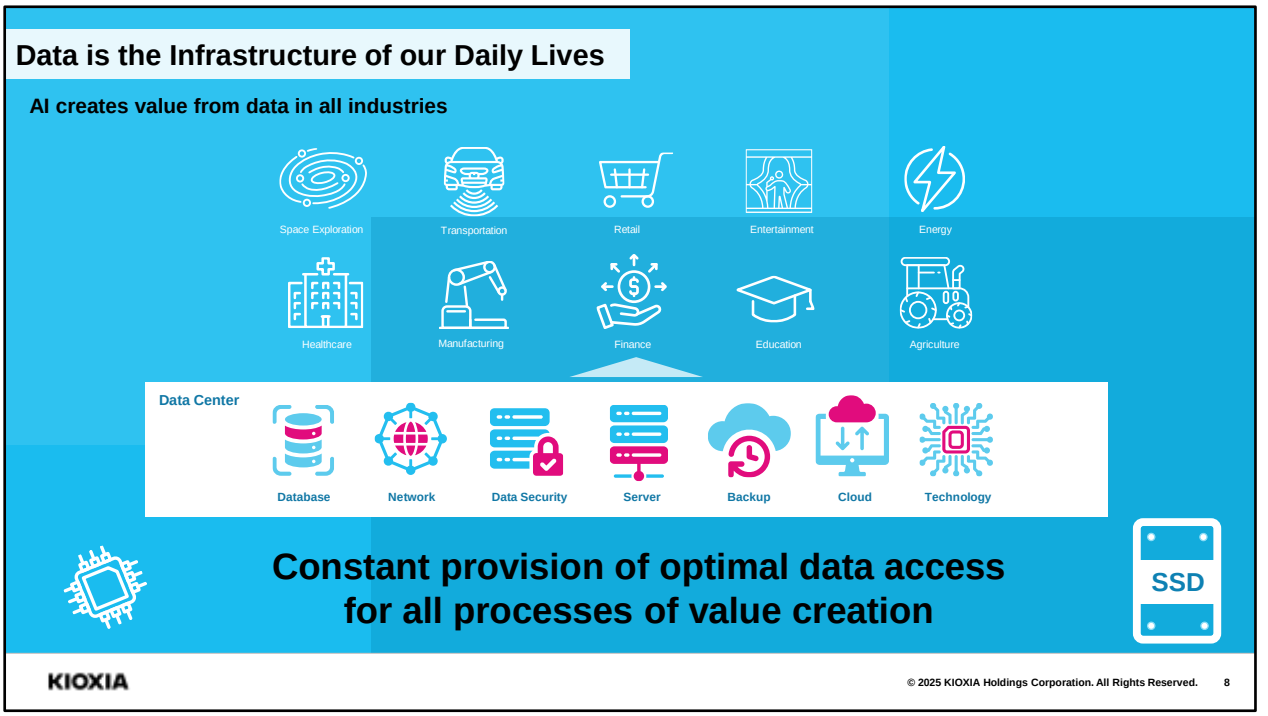
This slide shows the highlights of our most recent FY2024 achievements. Although the phases vary from R&D level to product samples, we have been able to achieve a variety of results; including R&D of key next generation NAND Flash memory products that meet the requirements of the expanding generative AI market and new future memories that go even further.
As a leader in flash memory technology, we would like to continue to lead the way at technology inflection points and provide the world highly competitive products as quickly as possible.



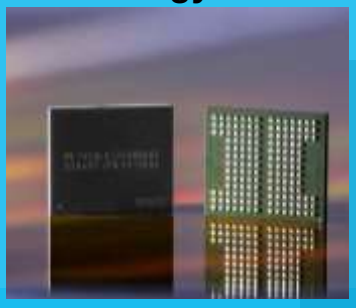
Flash memory has made consumer electronic devices more mobile, and it's become an essential component in cloud computing and other industrial applications. And now, with the advent of generative AI, we are entering a new era in which vast amounts of data will create even more value.
Currently, GPUs and DRAM (HBM) have become increasingly important in the generation phase of learning models. In addition, flash memory is becoming more important as a core high-capacity storage technology that can be accessed at high speeds to meet the growing demand for inference.
Today I would like to explain how we support innovation in the age of AI.



Generative AI is already a new value creation engine permeating every industry. Vast amounts of data are generated from our everyday lives and economic activities, but the storage of data by itself does not create any value. Leveraging generative AI to process vast amounts of information and create new value requires high-capacity, high-speed, low-power storage providing optimal data access.

How Kioxia Excels

Technology



Scale

Partnership

With a stable production foundation and industry-leading technology, we are building the core of the information infrastructure together with our partners.

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We have three core competencies and engines of growth: technology we have, production scale and partnerships within our customers and supply chain.
As shown in this slide, together with our customers, equipment and material suppliers, we will continue to play a key role in the provision of information infrastructure with our stable production systems and industry-leading technology.
Let me explain the detail of three core competencies.

Technology

A Technology Leader in Flash Memory, Creating World Firsts

- **Development of competitive memory devices in pursuit of bit density**
- **Development of high-capacity and high-performance SSDs tailored to usage scenarios**
- **Technological proposals with new concepts for SCM and HDD replacement**

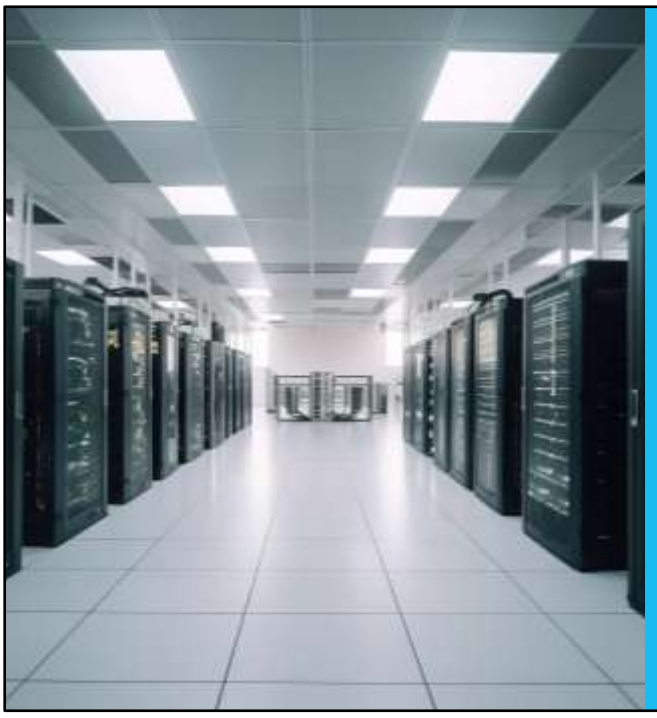
The first engine is technology. As mentioned earlier, we have created an inflection point in flash memory technology. Always striving to improve bit density in order to achieve high capacity, we have developed high-capacity, high-performance SSD storage, which has been well received by the market.
We will also focus on understanding future trends and proposing new concepts to our customers, such as storage class memory and memory that replaces HDDs.

Scale

Leading Global Flash Memory Production Facilities Leveraging Economies of Scale

- **Enjoying cost benefits from a 25-year partnership with Sandisk**
- **Smooth mass production through data integration and AI utilization between Yokkaichi and Kitakami plants**
- **Expansion of product lineup with reduced investment through Dual-Axis Strategy**

The next engine is scale. Our 25-year manufacturing joint venture with Sandisk has provided us with economies of scale, and thereby cost competitiveness. We are also strengthening collaboration between our Yokkaichi and Kitakami plants, sharing data between them in order to achieve even more efficient production.
In addition, as will be explained in detail later by the officer in charge, through a dual axis strategy that leverages CBA technology, we intend to realize significant improvements in terms of performance, memory density, and power efficiency, and will further expand our existing product lineup to meet the diversification of customer requirements in the expanding market, such as the need for not only higher capacity but also higher performance.



Partnership

Partnerships with Leading Companies in Each Market

- **Business relationships with clients that hold significant market share in the smartphone and PC sectors**
- **Collaboration with top companies in the server market**
  Expansion of Business with Hyperscalers
- **Building a robust supply chain with equipment manufacturers, material suppliers, and OSATs**

The third engine is partnerships with leading companies in each market. We have experience working with customers who command high shares of the smartphone and PC markets, and we also collaborate with leading companies in the server market.
We are also actively pursuing partnerships with equipment and material companies that support semiconductor manufacturing in order to build a more robust supply chain.

Environmental contributions to society

During **Product Manufacturing**
Reduction of Greenhouse Gas Emissions

- **Promotion of Energy Conservation and Adoption of Renewable Energy: Targeting procuring 100% of our energy from renewable sources by FY2040**
- **Net-zero Greenhouse Gas Emissions: Aiming for net-zero Scope 1 greenhouse gas emissions and Scope 2 emissions by FY2050**

During **Product Use**
Improvement in Energy Consumption Efficiency

- **Efforts to Reduce Power Consumption per Bit Targeting a 50% Reduction in Energy Consumption from FY2017 to FY2025**

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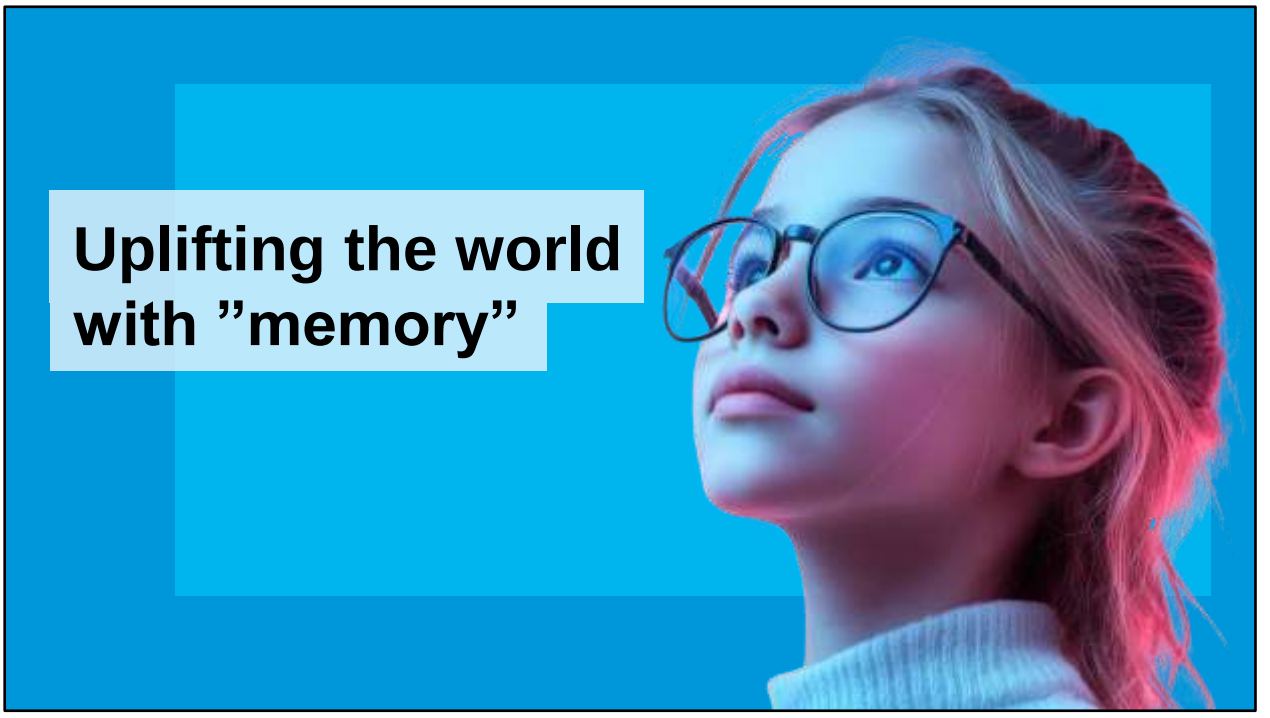
Next, I would like to explain our environmental contribution to society. The Kioxia Group is engaged in various activities to realize a decarbonized society.
To begin with, we are undertaking activities aimed at reducing the emission of greenhouse gases and we are aiming to procure100% of its energy from renewable sources by FY2040. And by FY2050, Kioxia Group aims to achieve net-zero in terms of greenhouse gas emissions, i.e., direct emissions from its business sites, and in terms of emissions resulting from its use of purchased energy.
As the utilization of data increases, power consumption in datacenters will also become an issue. Flash memory also has an advantage over other devices in terms of power consumption, which will be discussed in more detail later. Our technology has also reduced the power consumption per bit of flash memory by 50% over the past eight years;from 2017 to 2025.



In addition to AI, data utilization has also become indispensable in our daily lives, representing a kind of industrial infrastructure. We will continue to provide memory technology and new solutions that support technological innovation in the utilization of data, thereby fulfilling our mission to uplift the world with "memory".
This is the end of my presentation and officers in charge will explain in further.

Flash Memory Market Growth and Our Long-Term Financial Model

Junichiro Yaguchi
Managing Executive Officer, CSO

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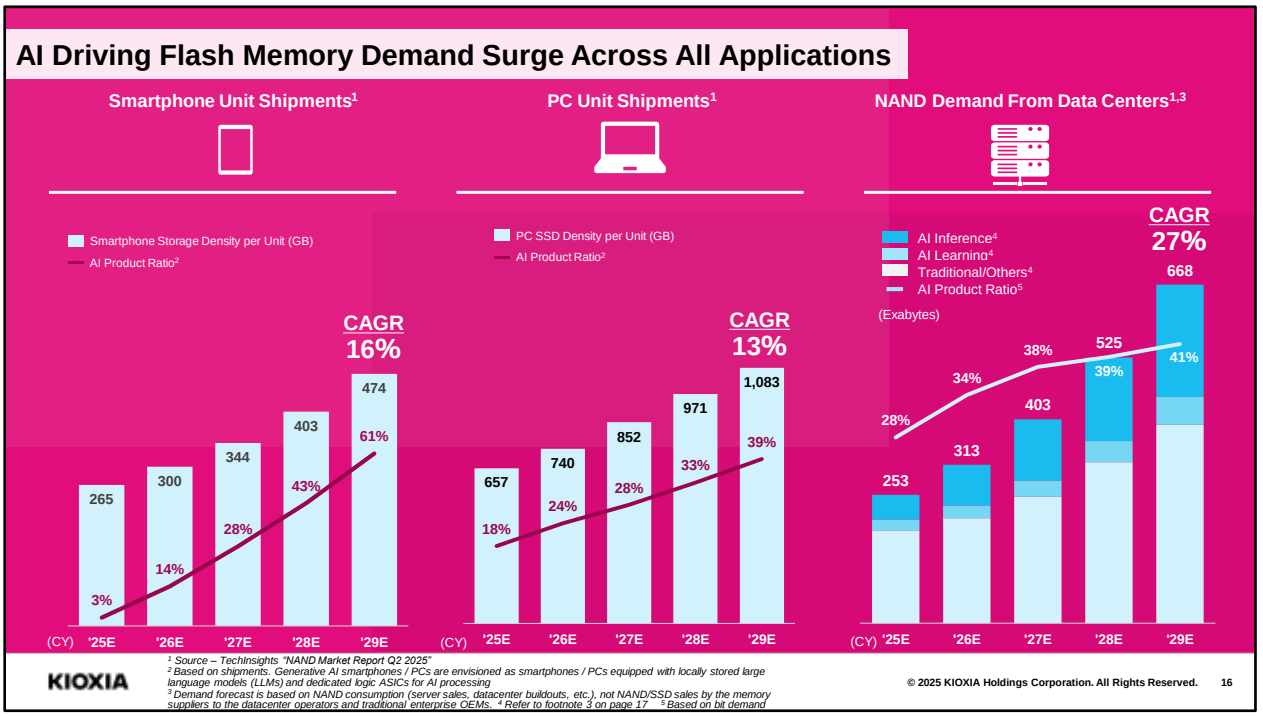
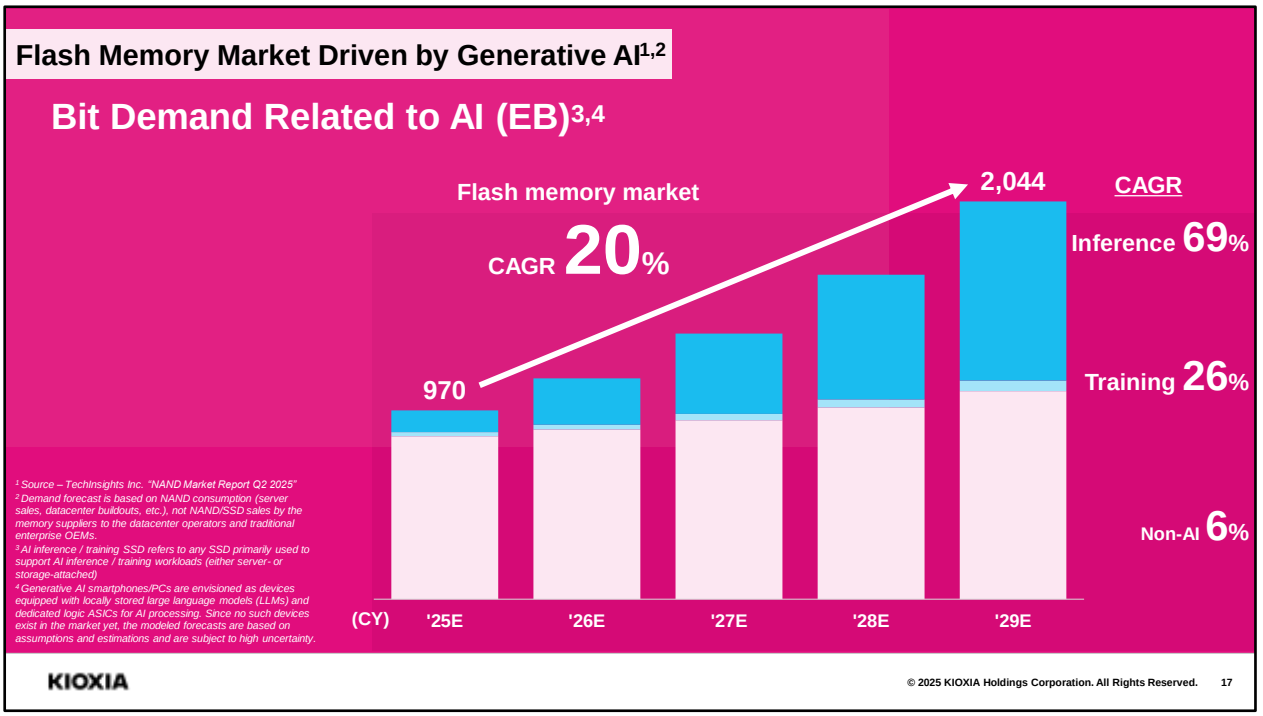
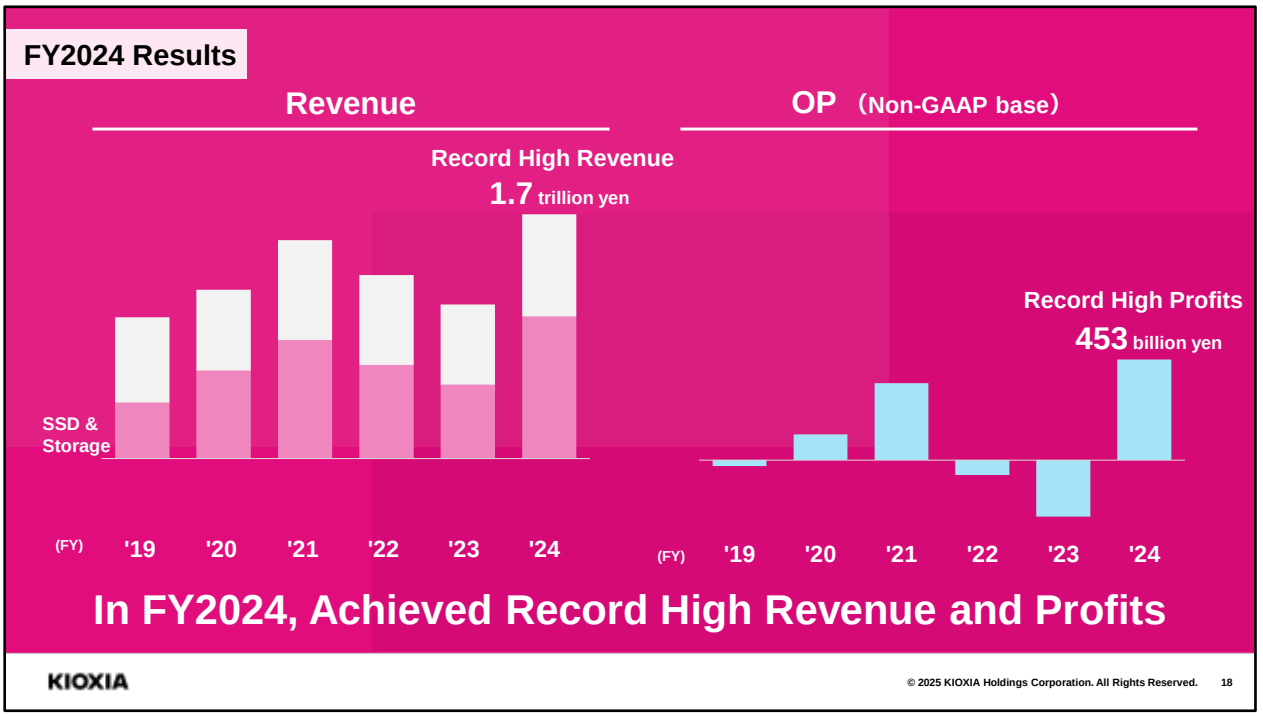
I'm Junichiro Yaguchi, Managing Executive Officer & CSO of Kioxia Holdings Corporation. I will now cover the medium- to long-term NAND market outlook and our Long-Term Financial Model.



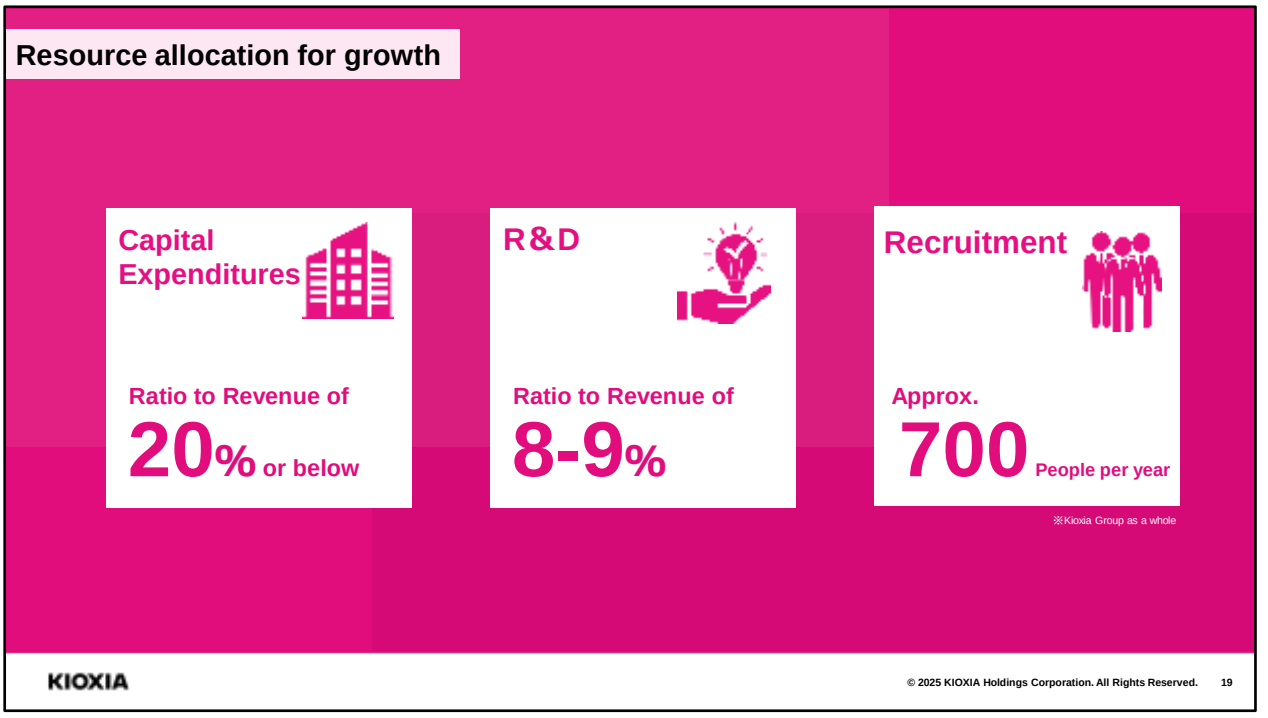
There are three major markets for flash memory: smartphones, PCs, and data centers. In all of them, demand for NAND will grow as AI accelerates the generation of data.
The graph on the left shows the projected growth of individual smartphone flash memory capacity, with an estimated average annual growth rate of 16% through 2029. The line graph shows the percentage of smartphones equipped with AI. Similarly, the graph in the center shows the growth in the flash memory capacity of PCs – an average annual growth rate of 13% through 2029. The line graph shows the percentage of PCs equipped with AI. The bar graph on the right shows the projected demand for flash memory in the datacenter market, which is expected to grow by 27% per year. AI servers, especially those used for inference (shown in blue), are expected to drive growth, and more than 40% of datacenters are expected to be equipped with AI servers by 2029.
NAND flash memory will become a key storage solution for the AI market, just like GPUs and HBMs.



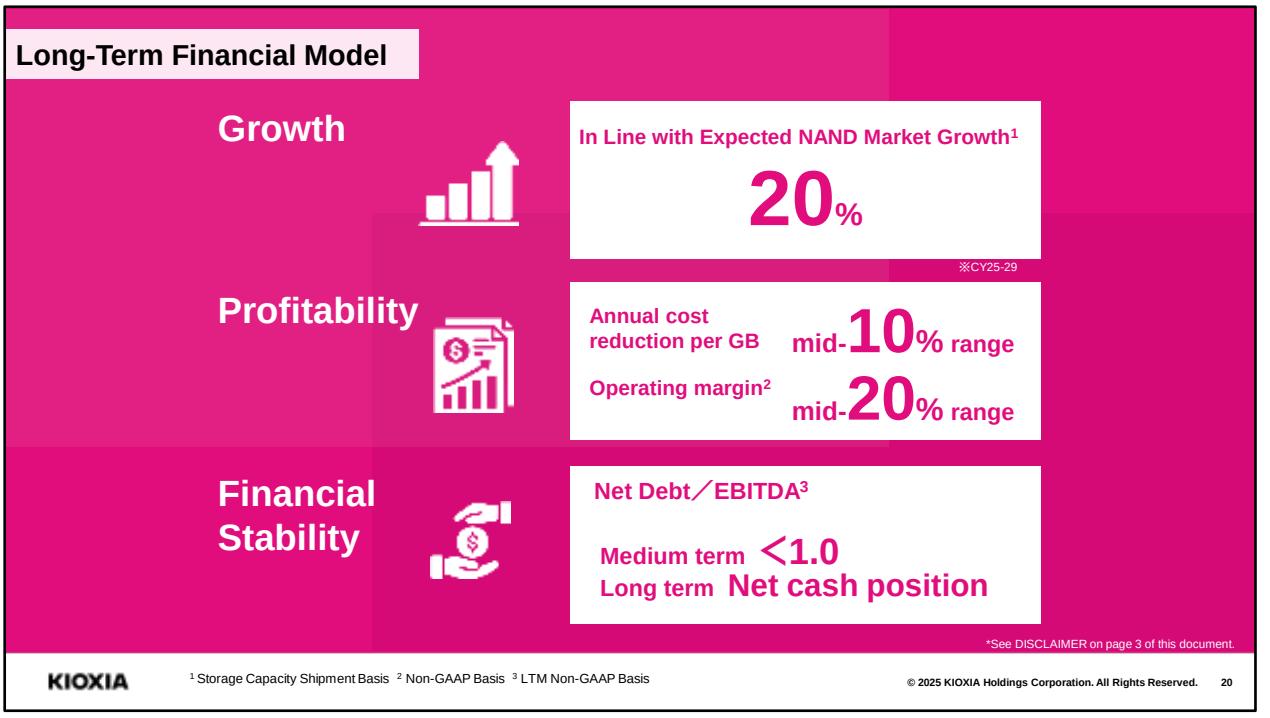
On the previous page, we looked at the NAND flash memory used in three applications. If we now focus on AI, it is clear that with the overall NAND market seeing annual growth of 20% over the next five years, demand in the AI field will be the most significant.
By 2029, almost half of NAND demand is projected to be AI-related. In particular, demand for memory used for inference in edge products such as datacenters, PCs, and smartphones is expected to grow by as much as 69% per year.



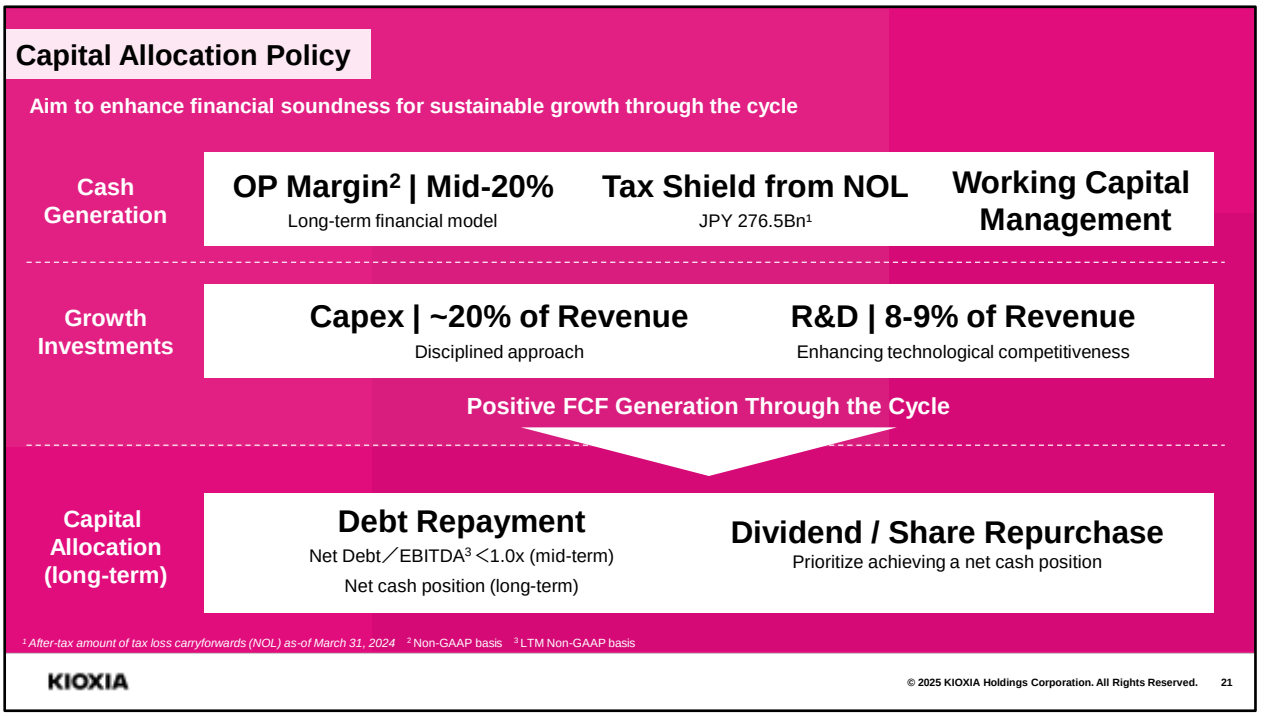
Next, looking back our company's performance over the past five years, during the second half of 2022 and throughout 2023, Kioxia and the memory industry in general experienced one of the worst downturns ever. But during that time, we adjusted production levels and implemented organizational reforms in order to achieve a leaner business structure. As a result, Kioxia achieved record revenues and profits in FY2024. Although revenues are still cyclical, the highs are higher, and the lows are higher. Revenues in the SSD & storage segment in particular are experiencing steady growth.



I would like to talk about our resource allocation. We will maintain the discipline required to keep our capital expenditure below 20% of revenues and will maintain our R&D spending at 8-9% of revenues, focusing on the SSD business and next-generation device development.
In regards to human resources, we will also strengthen our R&D and production by hiring about 700 people each year.



This is our long-term financial model, announced by us in November, 2024. Kioxia plans to maintain the bit growth in line with flash memory market growth. Regarding profitability, Kioxia aims to achieve an average operating income in the mid 20% range by increasing the sales ratio of SSD for Data Center and Enterprise and by reducing the unit cost per gigabyte by an average of mid 10% range through the cycle. In terms of financial soundness, Kioxia assumes that we will achieve a net debt to EBITDA ratio of less than 1.0 in the medium term and a net cash position in long term.



I would also like to explain how we will allocate capital, starting with cash generation. Firstly, we will target to maximize our cashflow by earning operating income through maintaining and strengthening the competitiveness of our business. We will continue to offset our losses to reduce taxes, and improve the efficiency of our working capital. At the same time, we will continue to exercise discipline, investing in growth and funding capital expenditure and research and development in an efficient manner.
Our interest-bearing debt is basically a result of our acquisition by the Bain Consortium after we were spun off from Toshiba in 2018, and we believe our business can continue to generate positive free cashflow in the medium to long term. In fact, although we faced one of the worst downturns on record from 2022 to 2023, we created positive cumulative free cashflow from 2018 to 2024. We will continue to generate positive free cashflow and prioritize the repayment of interest-bearing debt; thereby strengthening our financial base and increasing corporate value.
We will prioritize the realization of a net cash position, as set out in our long-term financial model, and we will continue to consider dividends and other returns to shareholders when the timing is right.
This concludes my explanation.

Storage Strategy for Generative AI

Masashi Yokotsuka
Managing Executive officer, Vice president of SSD div.

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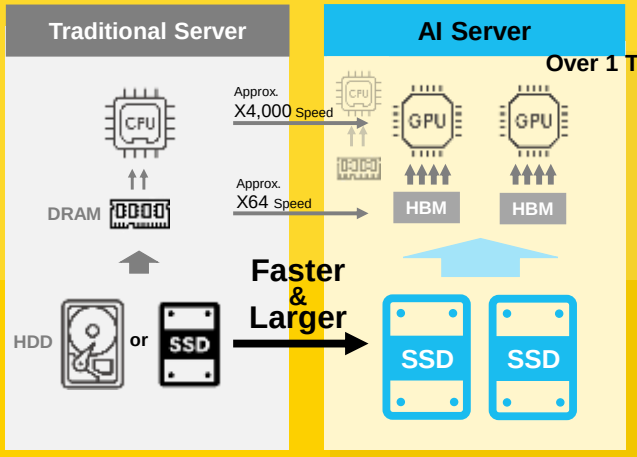
Hello, I'm Masashi Yokotsuka, Managing Executive officer Vice president, SSD div. And now, I will introduce Kioxia's storage strategy for AI era, which is currently entering its practical implementation phase.

The importance of SSD in AI systems

AI servers require large-capacity and high-speed data transfer.



Over 1 Trillion parameters

	Performance	Power	Capacity
HBM	✓✓✓✓	✓✓	✓
DRAM	✓✓✓	✓✓	✓✓
SSD	✓✓	✓✓✓✓	✓✓✓
HDD	✓	✓✓	✓✓✓✓

From the perspectives of capacity, performance, and power efficiency, SSD is the best choice.

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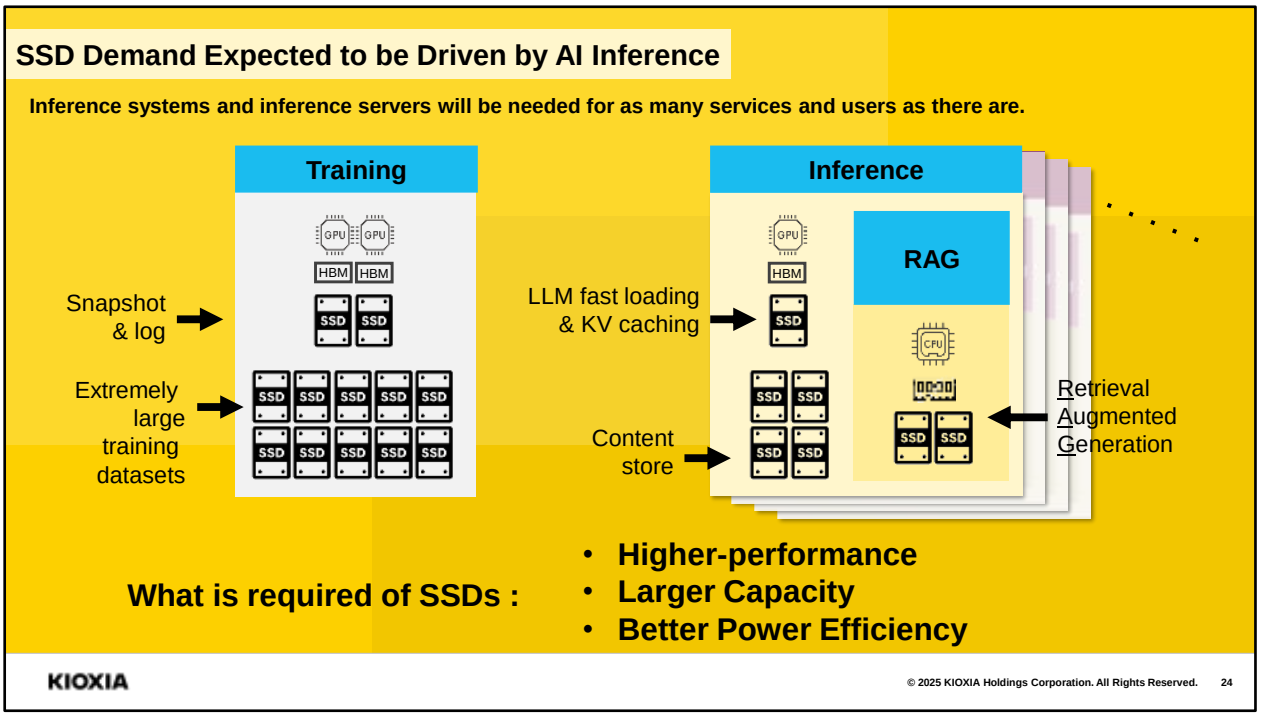
Server systems for AI require significantly faster computing speeds than traditional enterprise server systems, as seen in the use of GPUs. To support this advanced computing capability, memory and storage must deliver an unprecedented combination of high performance and large capacity.
Why are high performance and large capacity required?
For developing better performance AI models, it is reported that over one trillion parameters will be calculated and an enormous amount of data to be processed. In other words, the systems must process vast data within reasonable range of the investment costs and response are essential for developing competitive AI models.
Let's look at memory and storage for Enterprise Servers and AI systems on the lefthand of slide. Traditionally, Hard Disk Drives have been the main medium for storing large volumes of training data. Currently, SSD is indispensable for recent AI systems.
Please refer to the chart on righthand of slide, I will explain the reason why SSD is indispensable. Dependency on the mechanical nature of HDDs, they cannot achieve the high performance required for AI systems. In addition, due to the high bit-cost of HBM and DRAM, processing large volumes of data all at once is not cost-effective. Low power consumption is a key feature of SSDs, making them the most well-balanced and practical storage option for AI systems that handle large amounts of data. SSDs boost the overall performance of AI systems. In addition, SSDs improve system efficiency by reducing the idle time of costly resources such as GPUs.
When considering the evolution of AI systems, attention is often focused on GPU acceleration and the expansion of HBM bandwidth that supports them. However, SSDs are another crucial infrastructure technology that underpins AI systems, because they securely store vast amounts of high-quality data and programs and then rapidly supply them to the system.

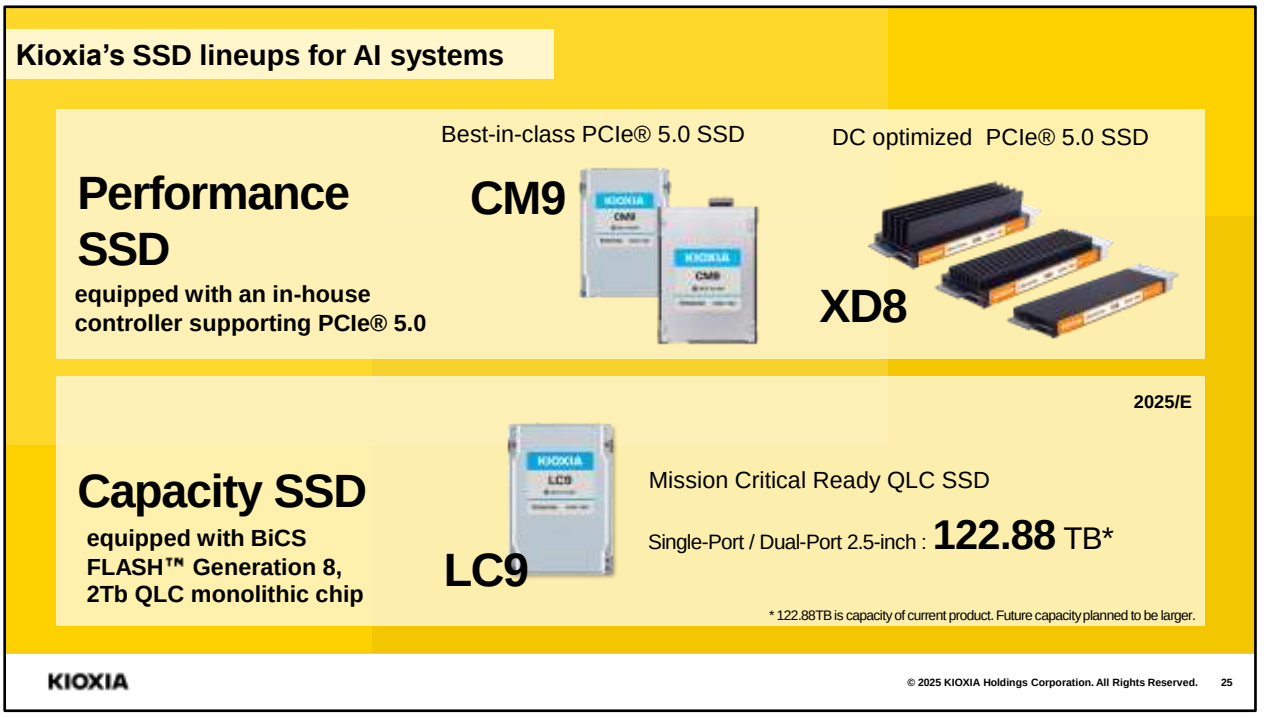


The development of generative AI initially focused on the training systems that generate large language model、LLM on lefthand side of slide. Now, as we move into the phase of practical AI deployment, it will be necessary to optimize the inference systems on righthand side that apply AI in wide-ranging uses. The number of inference systems will increase exponentially, with each user and services requiring a system tailored to specific needs.

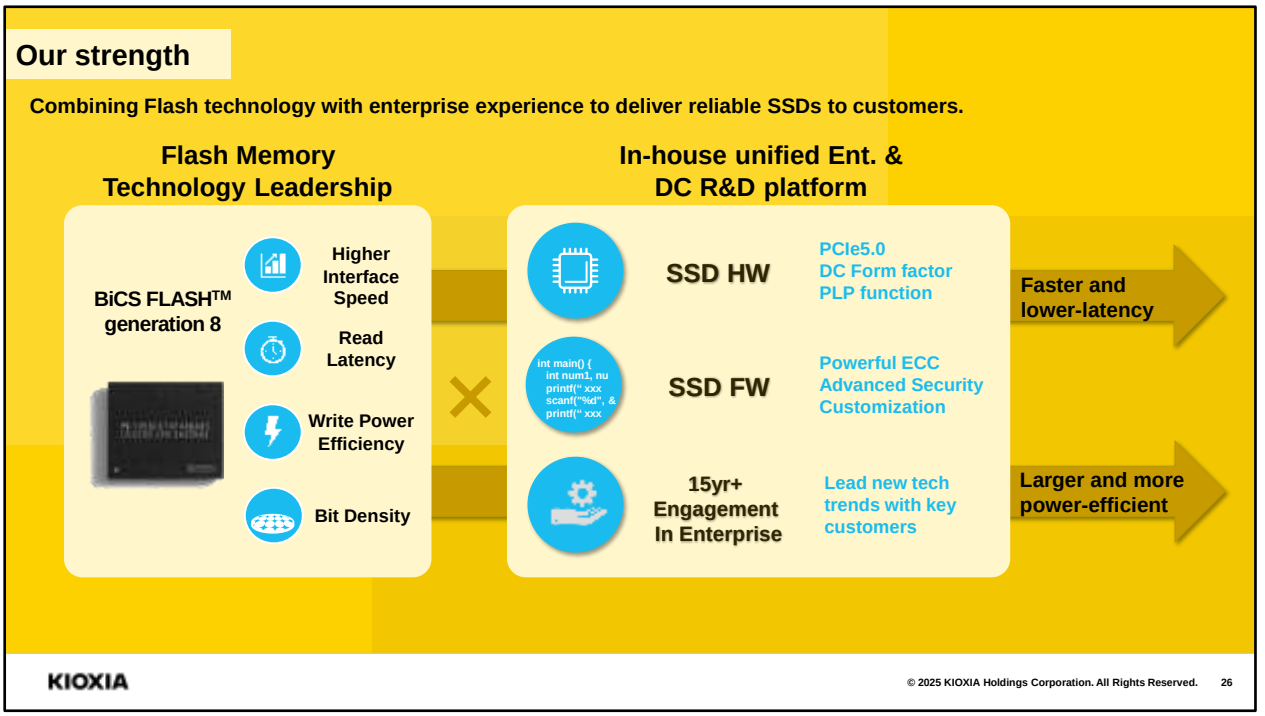
Let's look at the architectures of training systems and inference systems on the slide. Although the types of data stored differ, both training and inference require high-performance, large-capacity SSDs. The SSDs needed for AI systems, both for training and inference, can be categorized into those prioritizing performance and those prioritizing capacity. Performance-focused SSDs provide fast data read/write response times, which significantly reduces the waiting time for the most expensive asset, the GPU, to read and write data. By minimizing this waiting time, SSDs help maximize the utilization of costly and valuable GPUs, greatly contributing to return on investment.

Additionally, in inference system on righthand side, as companies adopt generative AI, the use of RAG, is gaining momentum as a technology for effectively using generative AI tailored to each company's specific needs. RAG enables the construction of database systems with minimal load while incorporating the latest and company specific data, so SSDs are an essential technology.

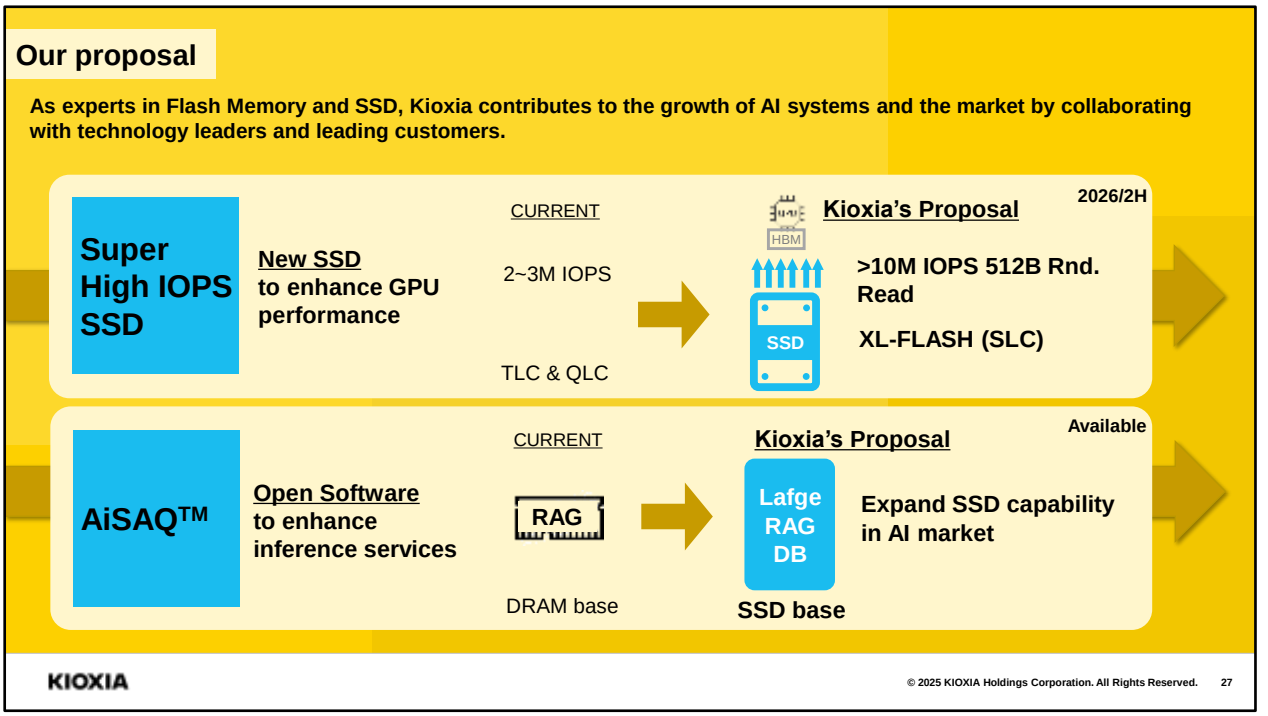
With the expanding application of inference systems and the growing adoption of RAG across companies and business units, the demand for SSDs designed for AI systems will increase significantly in the future.



Now I will introduce our SSD lineup that will lead the way in the era of generative AI.
On top half of slide, for high-performance applications, our lineup is designed to maximize GPU capabilities. It features products equipped with the latest high-speed interface standard, PCIe 5.0, a leader among mass-produced products. For systems that require both high performance and high reliability, we offer the CM9 series. Building on the PCIe 5.0 interface technology already in mass production in the previous generation, the CM9 uses the latest BiCS FLASH™ Generation 8TLC chips to achieve further improvements in performance and power efficiency. In benchmarking tests measuring machine learning performance, we have achieved a high GPU utilization rate of 99%.
For data center SSDs, we also plan to offer the XD8 equipped with PCIe 5.0. As the successor to our already mass-produced PCIe 5.0 product for data centers, it supports the latest SSD features to enable data center systems to provide optimal services. It meets the requirements set by the Open Compute Project, the industry body that discusses and defines specifications for large-scale data centers. Additionally, we are maximizing storage implementation density by supporting the form factor, which is designed specifically for use in data centers.
On bottom half of slide, for large capacity SSDs, our product lineup is suited for massive training data used in AI learning, large databases used in inference, and efficient storage of generated data. The LC9 is our first SSD to use BiCS FLASH™ Generation 8 2Tb QLC technology, achieving a large capacity of 122TB, which we plan to expand even further. Our lineup offers high reliability by leveraging Kioxia’s expertise and years of experience with enterprise and mission-critical products.
We are leading the growth in the AI market through supporting the evolving demands of AI systems with advanced SSD products and technologies. Moreover, we are driving the expansion of Kioxia’s SSD and FLASH MEMORY businesses.



The strength of our SSD products is supported by our fusion of FLASH MEMORY technology and SSD technology. As part of our FLASH MEMORY technology, we plan to expand our SSD lineup utilizing BiCS FLASH™ Generation 8. BiCS FLASH™ Generation 8 incorporates CBA technology to achieve large capacity, ultra-high-speed interfaces, low-latency read performance, high power efficiency, and high density. It is the optimal memory solution for building SSD products required by generative AI systems.
However, without SSD technology that fully leverages this FLASH MEMORY technology, it is impossible to provide optimal solutions for generative AI systems. Since we develop our own SSD controllers and SSD firmware in-house, we are maintaining an integrated development system that includes FLASH MEMORY. Thanks to this system, we can quickly implement the latest high-speed interface standards and SSD functionality specifications and then bring them to market.
Additionally, Kioxia has been developing and mass-producing SSD products since the early days of SSD adoption in enterprise systems over 15 years. Drawing on our knowledge and experience with mission-critical applications, we have developed technologies that ensure high quality. We also provide high-quality technical support, including system deployment, to deliver extremely stable high-performance SSDs.
Going forward, the demands for higher performance and larger capacity will continue to evolve. By leveraging our strengths, we will continue to advance our SSDs and expand their market share.



As a leading manufacturer of cutting-edge FLASH MEMORY and SSD technologies, Kioxia is committed to contributing to the evolution and growth of AI systems and markets. To this end, we collaborate with technology leaders in the AI market and customers engaged in advanced technology development to drive research and development of state-of-the-art storage solutions.

Consider our Super High IOPS SSD as shown in the figure above. To improve AI system performance, GPU computational power must be dramatically enhanced. So we are combining new design techniques and our ultra-high-performance FLASH MEMORY, XL-Flash memory chip with SLC memory cells. By combining this chip with a new controller, we are developing a Super High IOPS SSD to deliver an unprecedented number of input/output accesses namely IOPS for small-scale data. In the second half of 2026, we plan to release this SSD, which will achieve over 10 million IOPS. We will also collaborate with the world's largest GPU manufacturer to realize even better performance in GPU systems.

Improving the accuracy of responses which generative AI generates is also crucial. As shown in the figure below, for RAG which enables responses based on the latest information, as well as enhances response accuracy, we offer an open-source software solution called AiSAQ. This algorithm optimization solution enables search data—traditionally deployed in DRAM—to be expanded onto SSDs without capacity limitations. By collaborating with multiple vector-database vendors to create better RAG systems, we intend to further strengthen SSDs for AI. Going forward, we will actively contribute to the evolution of the market and technology.

By continuing to leverage cutting-edge technologies pioneered by Kioxia, including FLASH MEMORY, SSDs and software, we look forward to being a powerful driver of the AI era.

That’s all for my explanation. Thank you very much.

Our Leadership in Flash Memory Technology

Hiroo Oota
Executive Vice President and Executive Officer

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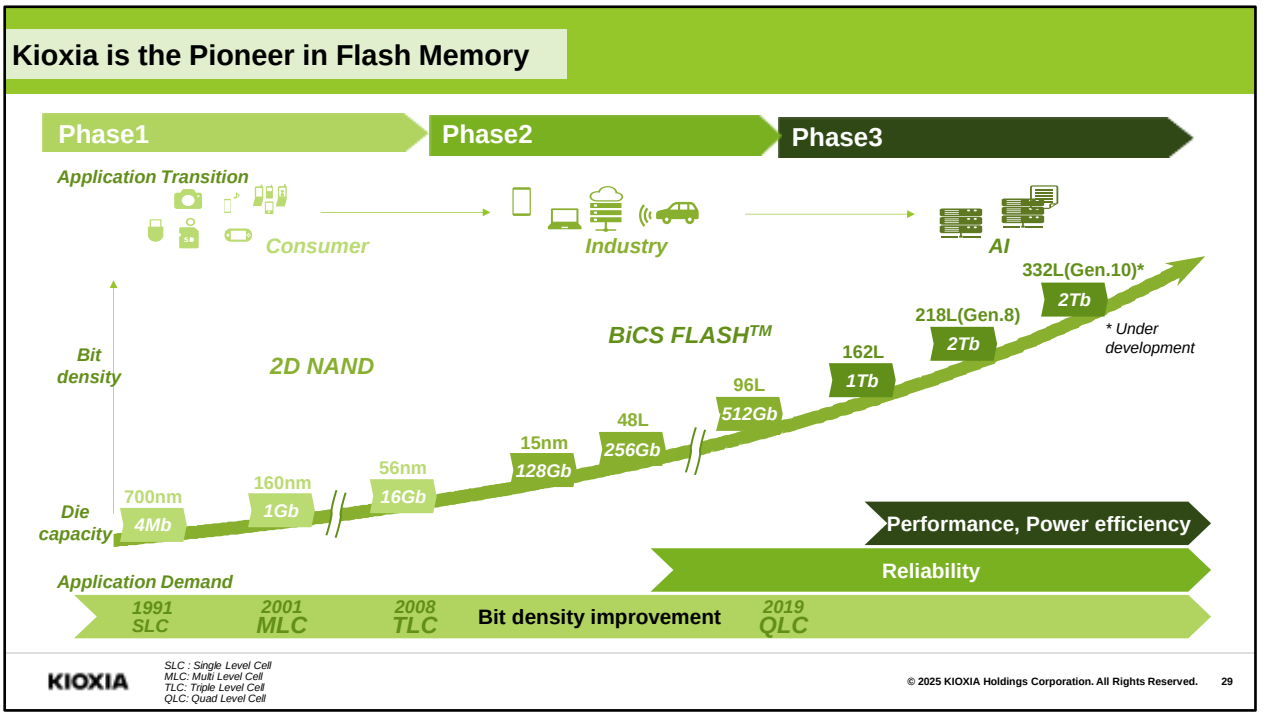
Good afternoon, everyone. I'm Hiroo Oota, Executive Vice President and Executive Officer of Kioxia Holdings Corporation. In this section, I'd like to share with you our technological leadership in flash memory.



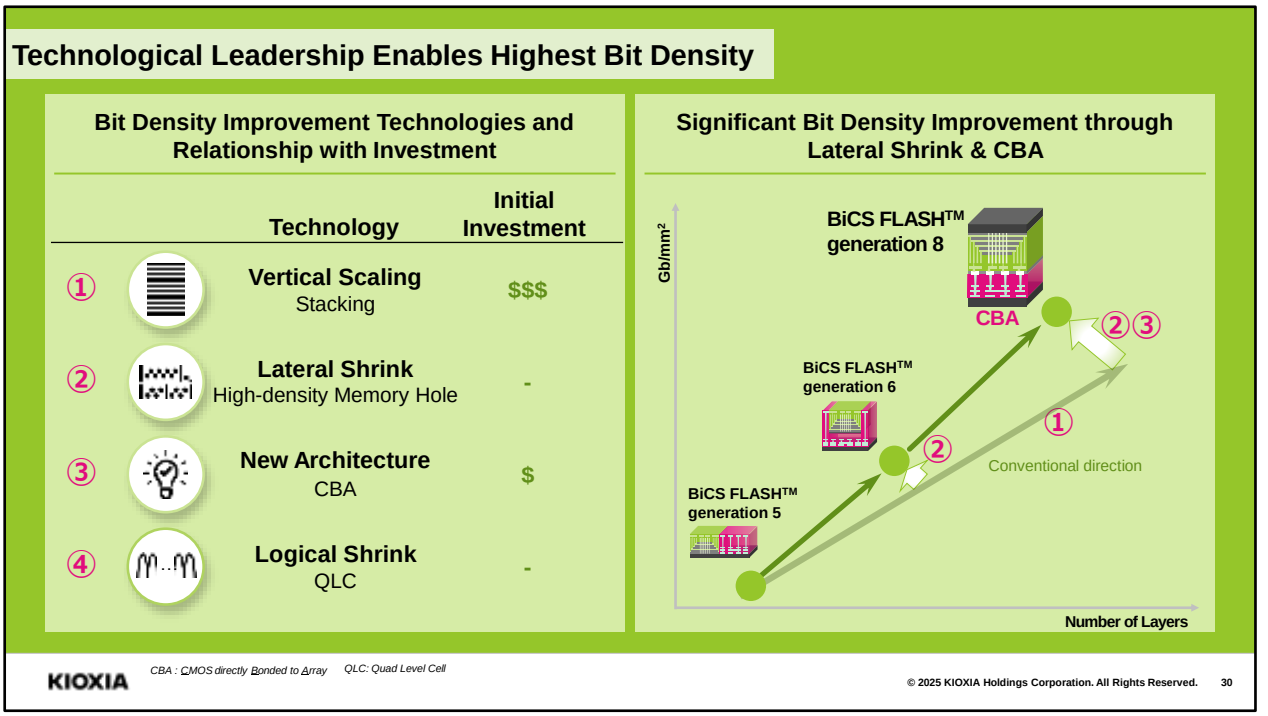
As the inventor of NAND flash memory, our company has been supporting the evolution of applications for around 35 years, since the era of 2D NAND to the cutting-edge 3D NAND.

From the early stages of digital still cameras and card products in Phase 1, to PCs, smartphones, automotive applications, and cloud computing in Phase 2, and now as we enter the AI era in Phase 3, the demands of applications have evolved. In Phase 1, the primary requirement was for increased capacity. From Phase 2, the focus shifted towards reliability, and in Phase 3, there are broader demands for performance and power efficiency.

We have achieved an increase in NAND capacity from the 4Mb NAND in 1991 to the currently mass-produced BiCS FLASH generation 8 with a capacity of 2Tb – a 500,000-fold increase, driven in large part by the evolution and demands of applications.

During these increases in capacity, we have progressed from single-level cells (SLCs) to multi-level cells (MLCs), triple-level cells (TLCs), and now quad-level cells (QLCs), with many of these technologies originating from Kioxia.

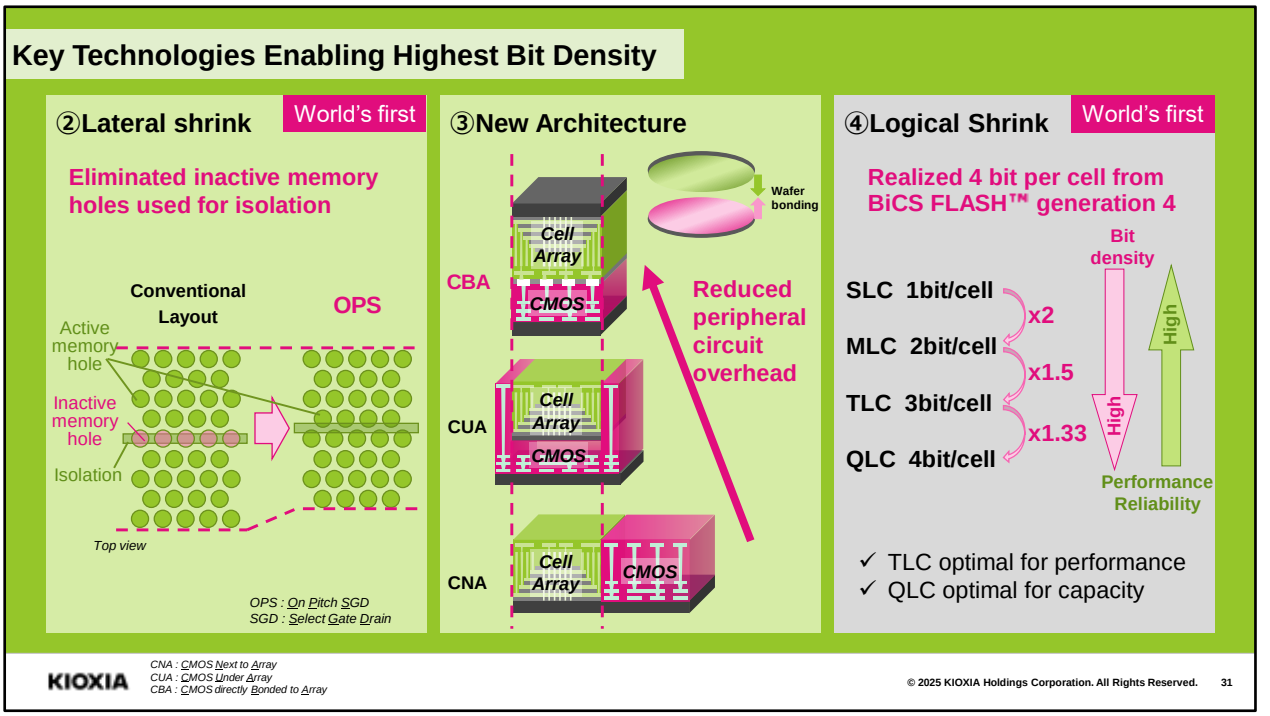
Using the following slides, we will outline the technological capabilities and development strategies that differentiate us from our competitors. We believe our company will continue to lead the industry in technological innovation.



Let me explain how our technological leadership has enabled us to achieve the highest bit density from three perspectives.
First, I'd like to talk about how we are enabling larger memory capacity.
The level of cost competitiveness in NAND chips depends on how many bits can be packed into a single chip. Generally, methods to increase bit density include the following, as shown in the left diagram:

・"Vertical Scaling", which involves increasing the number of layers
・"Lateral Shrink" technology, a key strength of ours, which involves reducing the two-dimensional area of the chip
・The introduction of new architectures such as CBA (CMOS Directly Bonded to Array)
・Logical bit density enhancement through approaches such as QLC

As indicated under the "Initial Investment" heading in the left diagram, the level of investment required varies depending on the chosen methods. Therefore, finding ways to minimize investment while enhancing bit density is a crucial part of our technology development strategy.
As shown in the right diagram, while other companies focus on increasing bit density by Vertical Scaling in the conventional direction, we are enhancing our strategy by additionally focusing on reducing the chip area using lateral shrink technology.
Furthermore, we are pursuing various development approaches such as the introduction of new architectures like CBA and the early adoption of QLC to maximize bit density.



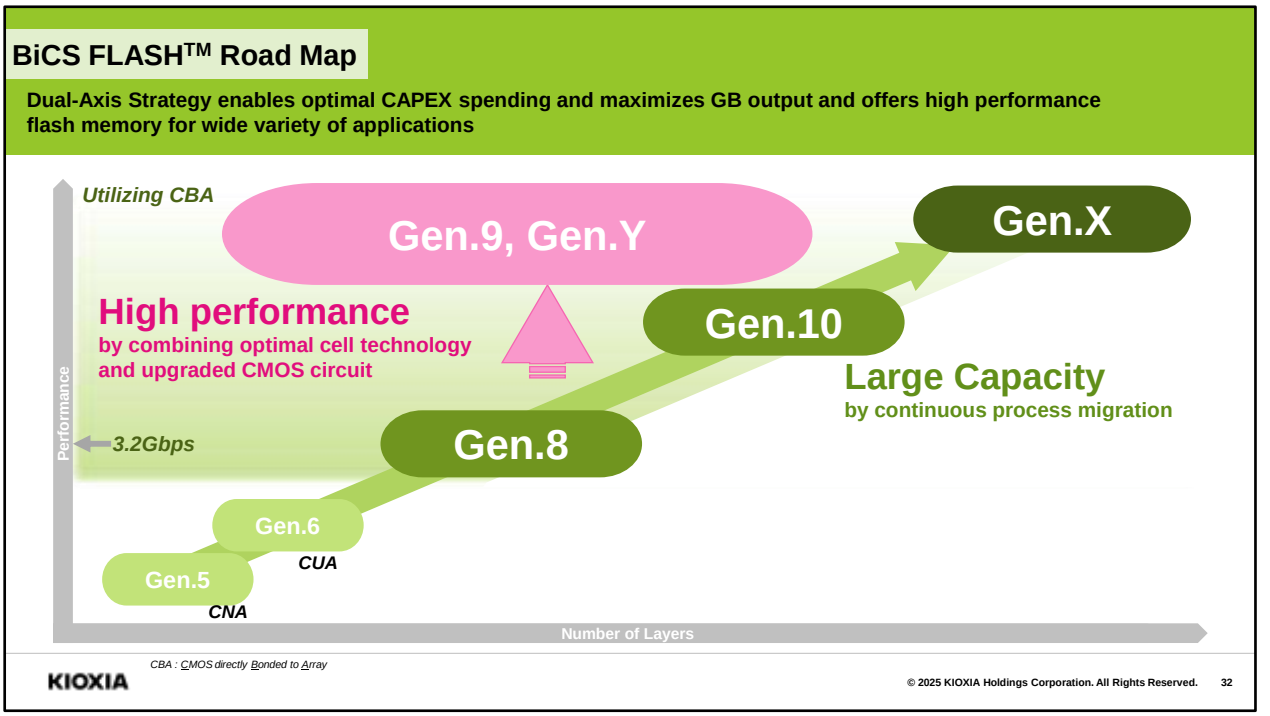
Let me introduce the key technologies that enable us to achieve the highest bit density. These are lateral shrink, the new CBA architecture, and the logical shrink technology mentioned in the previous slide.

First, regarding lateral shrink in the left diagram, Kioxia, in collaboration with our partner, has developed a groundbreaking technology called On Pitch Select Gate Drain—abbreviated as OPS. This technology reduces the area overhead in the wordline (horizontal) layer of memory cells. Until the BiCS FLASH generation 6, in the conventional layout, some memory holes were sacrificed and made inactive, providing physical isolation to allow the individual selection of physical pages. In the BiCS FLASH generation 8, Kioxia became the first in the industry to adopt OPS technology, which enables isolation to be formed in-between active memory holes, significantly reducing area overhead.

Next, as illustrated in the center diagram the new architecture: CBA technology. In the past, the architecture evolved from CNA (CMOS Next to Array) to CUA (CMOS Under Array), which reduced the area overhead of the CMOS indicated in pink, but there was still a routing overhead required to connect the CMOS to the memory cells. The CBA technology introduced in the BiCS FLASH generation 8 further reduces this overhead by separately fabricating the CMOS and cell array and bonding them together. Kioxia takes pride in being a leader in the industry with this technology as well. Furthermore, because CBA technology allows CMOS wafers and memory cell wafers to be processed separately under their optimal thermal conditions, both can achieve their highest performance levels. This enables highly competitive products in terms of interface speed and cell reliability.

The right diagram shows logical shrink, also known as multi-level cell, represented by QLC. We have been implementing QLC in 3D NAND since the BiCS FLASH generation 4.

Looking back even further, in 2007 we developed QLC-based products using 70nm 2D NAND technology. We can confidently say that we are leading in this area of technology as well.
However, this QLC technology is being deployed selectively to meet the specific requirements of individual markets, as it reduces cost through a trade-off of the performance and reliability of TLC (triple-level-cell) products.

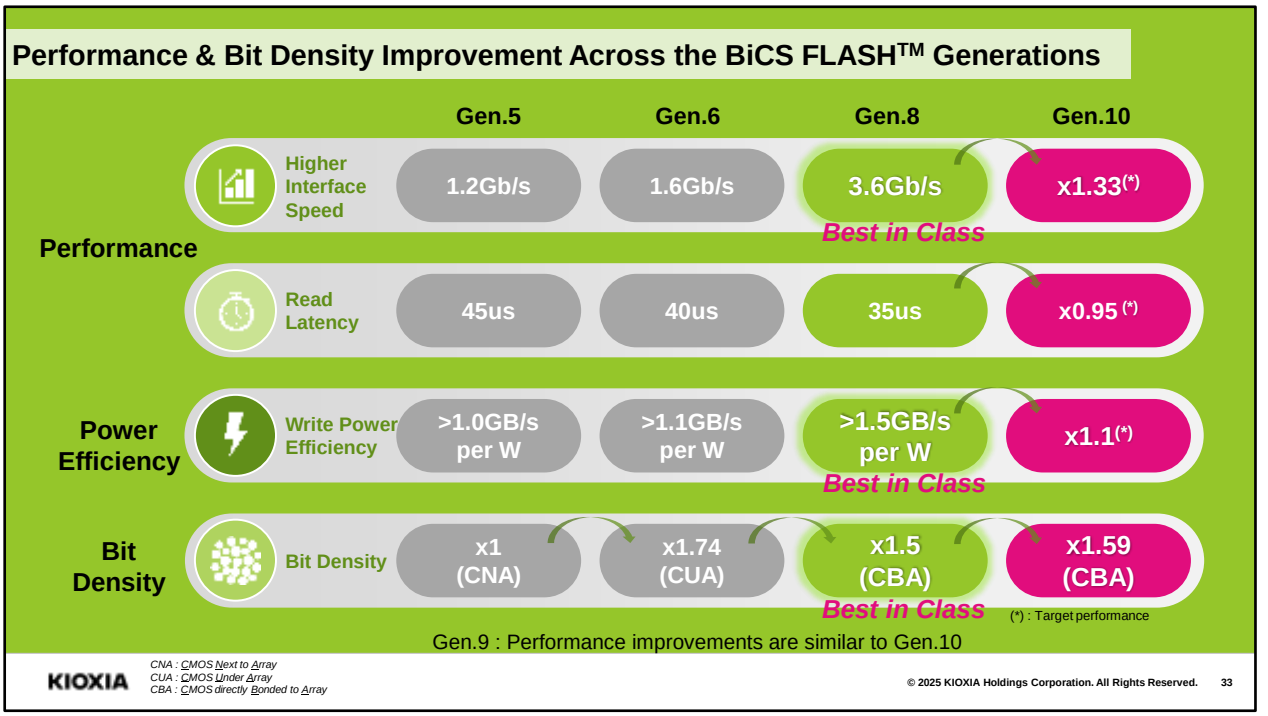


Secondly, I'd now like to explain our future BiCS FLASH technology strategy, which is extremely important to us as BiCS FLASH is one of our core product lines. We are advancing development along two axis: one that increases the number of layers in a conventional way, delivering large capacity and high-performance product lines, another that fully leverages CBA technology by combining existing cell technology with the latest CMOS technology to enable high performance with reduced investment costs. We refer to this as our Dual-Axis Strategy.

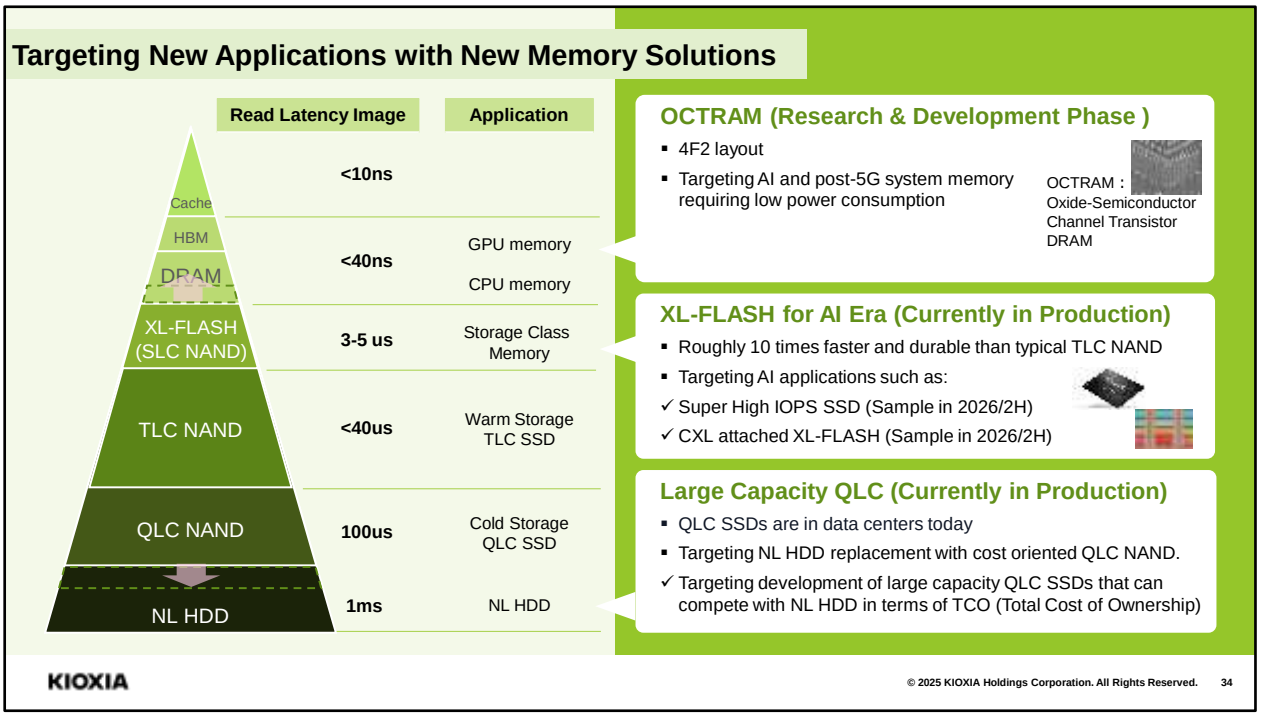
First, for the large-capacity, high-performance product line, we will combine further stacking with lateral shrink to develop products with high bit density and large capacity—such as BiCS FLASH generation 10 and beyond—aimed at meeting the needs of enterprise and data center SSD markets.

Second, for the performance-focused product line, we will develop the BiCS FLASH generation 9, by leveraging the CBA technology and combining the existing generation memory cells with high-speed CMOS technology, thereby meeting the requirements of a wide range of cutting-edge applications. Since we are leveraging existing memory cell generations, we can suppress the capital investment associated with stacking layers, while addressing the needs of AI-powered edge applications.

Through this Dual-Axis Strategy, we aim to maintain optimal investment efficiency while developing competitive products that will satisfy the advanced demands of next-generation applications.



Let me now cover the performance and bit density improvements we've made during the transition from BiCS FLASH generation 5 to generation 10.
Utilizing the technologies previously covered, the 8th generation BiCS FLASH significantly outperforms our previous BiCS FLASH generation 6 in terms of speed and power efficiency. By incorporating CBA technology, it achieves industry-leading interface speed and power efficiency, and it also shows superior bit density compared to our competitors' offerings. In fact the BiCS FLASH generation 8 has received very positive feedback and its performance, power consumption, and reliability are highly rated by many customers. This CBA technology is two generations ahead of the competition and its superiority will drive further expansion of the competitiveness and lineup of Kioxia SSD products.



Thirdly I would like to cover our focus on future new markets.
The left diagram shows the types of memory and their read latency speeds. At this moment, majority of our business is on TLC and QLC NAND, and the question now is how we expand our market presence. We are also working on the development of memory types other than TLC/QLC NAND.
One example is the DRAM market: we are developing OCTRAM (Oxide-Semiconductor Channel Transistor DRAM), a new type of DRAM using oxide-semiconductor channels, targeting future markets that will require low-power main memory.
Moreover, as a storage class memory that bridges the latency gap between TLC NAND and DRAM, we have developed XL-FLASH with a latency of 3us, which is by far the highest performance among flash memories. We plan to deploy this technology in two solutions.
First, Super High IOPS SSDs, targeting AI servers as mentioned in Yokotsuka's explanation of our SSD strategy. The major challenge in the AI training and inference is the lack of HBM/DRAM capacity and the need to redo calculations resulting from data read errors. SSDs are outstanding in providing large capacities and avoiding data read errors, and by utilizing the high-speed, low-latency XL-FLASH, we can achieve SSDs that can withstand high-speed computations of the GPUs.
The second is CXL-XL (Compute Express Link XL-FLASH-based memory), a memory solution utilizing the CXL interface technology, which allows memory space to be shared across CPUs.
As computing becomes larger-scale and more distributed to support advanced workloads, expanding memory capacity solely with DRAM presents challenges in both cost and power consumption.
We will support the demand for large-capacity, low-latency memory—which DRAM alone

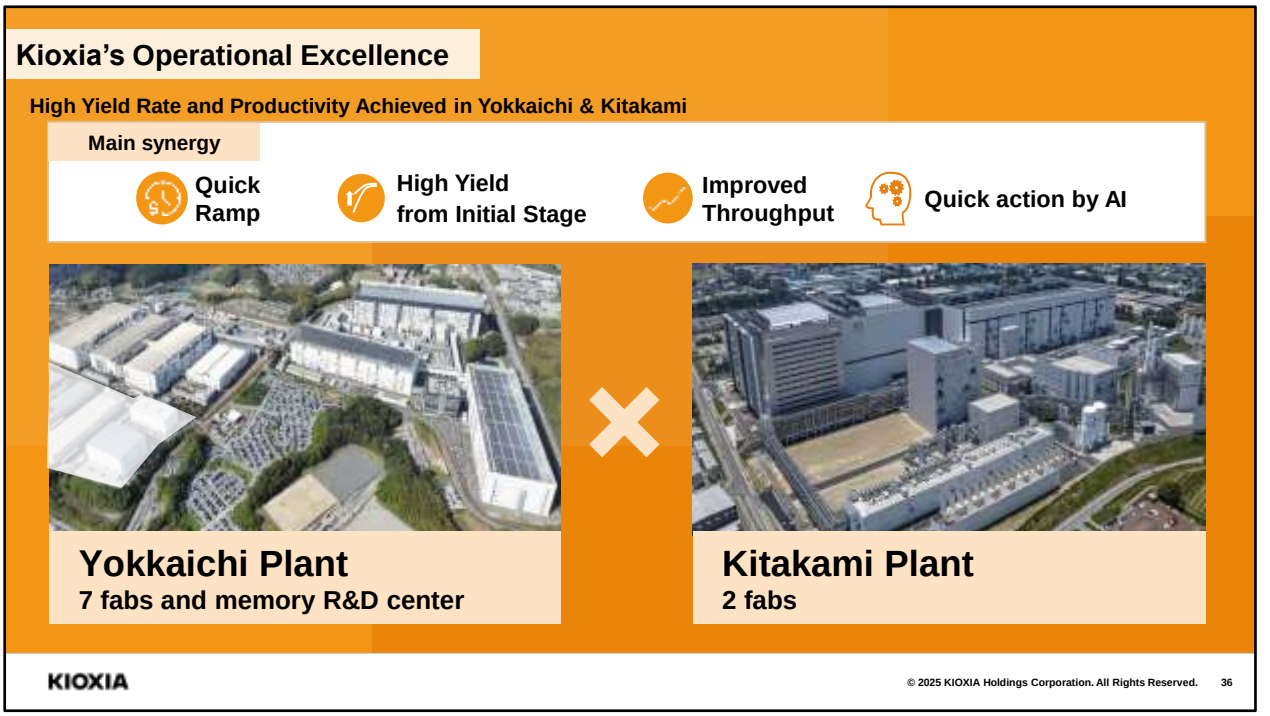
cannot achieve—with our CXL-XL solution. These are the solutions we are introducing as part of our storage class memory strategy leveraging XL-FLASH.
Lastly, we are progressing the development of ultra-large-capacity Quad Level Cell (QLC) flash memory. While this is already being adopted in data centers, we are also developing large-capacity, low-cost QLC NAND that can compete with NL-HDDs in terms of total cost of ownership.
Kioxia will also focus on developing these new markets and accelerating the further evolution of BiCS FLASH through our Dual-Axis Strategy.
This is my end of presentation.
Thank you.

Manufacturing and Capital Investment Strategy

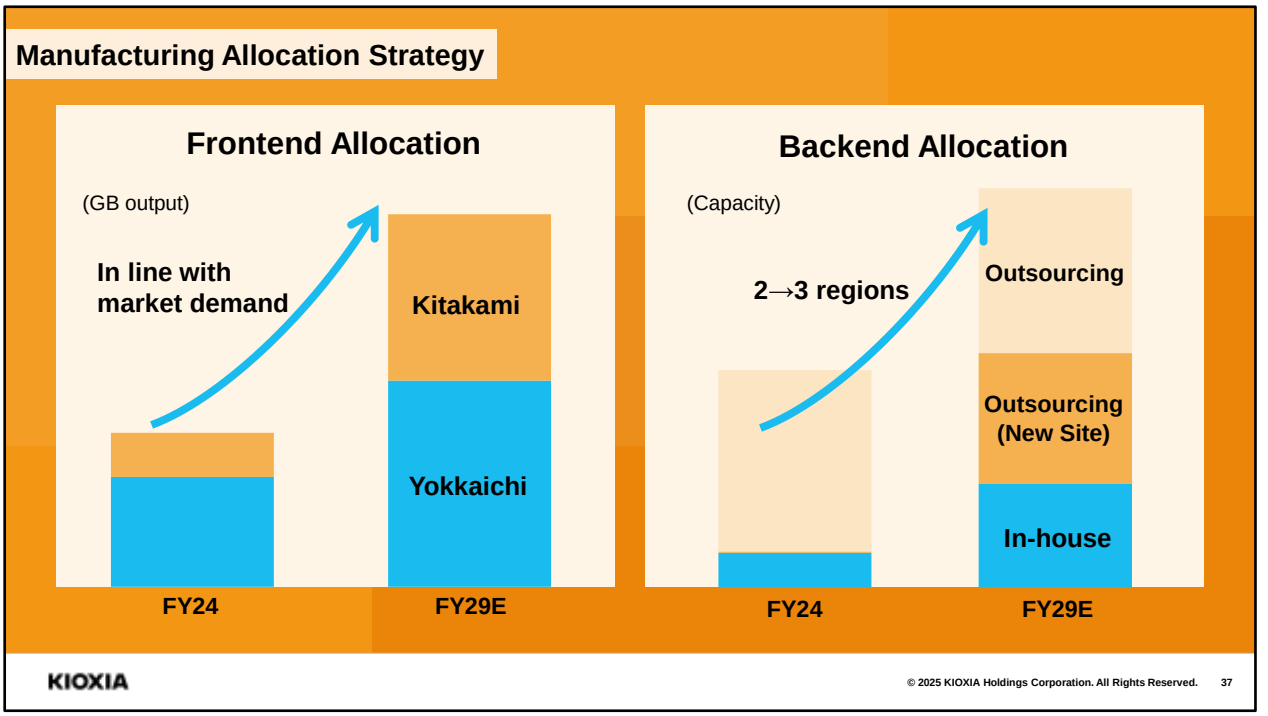
Tomoharu Watanabe
Executive Vice President and Executive Officer

KIOXIA

I'm Tomoharu Watanabe, Executive Vice President and Executive Officer at Kioxia Holdings Corporation. I will walk you through our production and investment strategies for the technologies and products we have discussed so far. First, let me introduce the characteristics and strategic roles of our two major manufacturing facilities – Yokkaichi Plant in Mie Prefecture and the Kitakami Plant in Iwate Prefecture.



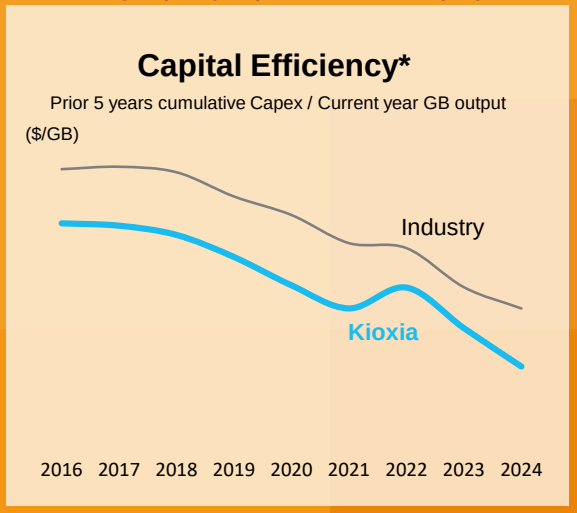
Both of our plants boast high productivity powered by big data and AI technologies. From a business continuity planning perspective, they together form an exceptionally resilient dual-site structure within Japan.
First, the Yokkaichi Plant, on the left picture, is not only one of the world’s largest NAND flash memory manufacturing facilities; it also houses an integrated R&D function. This is one of its key strengths. This enables a seamless transition from new product development to mass production, leveraging advanced technical capabilities and expert skills to create powerful synergies in equipment and process alignment. In addition, the Yokkaichi plant houses a cutting-edge R&D space dedicated to next-generation memory development, making it a core site that will drive future technological innovation.
The Kitakami Plant, on the right picture, will begin production at its second fabrication building this fall, as scheduled. With its state-of-the-art equipment, the Kitakami plant is expected to achieve even greater productivity and is will support our future growth. From the outset, the Kitakami plant has been managed with a focus on high-volume manufacturing. It is designed to further enhance products that were initially developed and mass-produced at the Yokkaichi Plant, and to improve yield and productivity. The potential the site offers for expansion makes Kitakami plant an especially attractive facility.



The graph on the left illustrates our front-end growth strategy, whereby we are increasing output in gigabytes at the Yokkaichi Plant by shifting to high-performance products. In parallel, we are expanding the Kitakami Plant with a focus on large-capacity products, aiming to eventually scale its production capacity to match that of Yokkaichi.
As for back-end processes, we have addressed the challenges caused by COVID-19 and supply chain disruptions. The graph on the right highlights how we are expanding the outsourcing of activities across multiple regions, while also strategically scaling up domestic operations, particularly at Yokkaichi. Looking ahead, to support the increasing sophistication of back-end technologies, stronger integration with front-end processes will be essential.

Effective Capex Control

Manufacturing Capacity Expansion While Keeping Financial Discipline

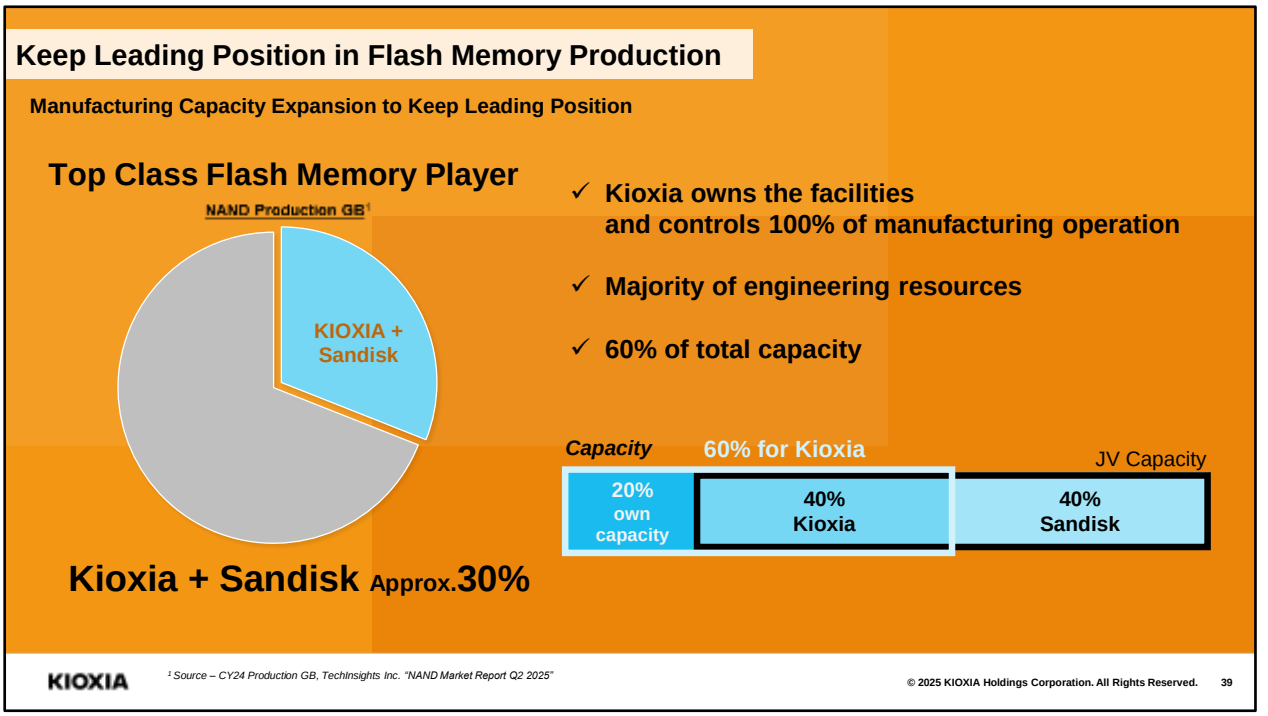


- ✓ **Investment in mass production for future growth**
- ✓ **R&D investment to keep technology leadership**

KIOXIA

* Source – TechInsights Inc. "NAND Market Report Q1 2025"

This chart shows investment efficiency in terms of growth in annual gigabyte output relative to cumulative capital expenditure over the past five years. We take pride in our ongoing achievement of the highest return on investment in the industry, driven by our strong cost competitiveness and backed by the technological excellence we referred to earlier. We have made the necessary investments in production to date, and we plan to continue making the investments required to support future growth, all while maintaining financial discipline.
In addition, to sustain our technological leadership—one of our key strengths—we also plan to continue making ample investments in research and development.



We are engaged in development and investment jointly with Sandisk, and our combined production scale is among the highest in the flash memory industry. Our joint venture with Sandisk has been in operation for 25 years, and we have maintained a strong and collaborative relationship with each other. In terms of operations, Kioxia is entrusted with 100% of the production from Sandisk, leveraging our manufacturing resources, semiconductor process expertise, and procurement capabilities . A key feature of this joint venture is the combination of production for both companies, which allows us to realize economies of scale and reduce costs. While the ownership of the joint venture is approximately split 50-50, we maintain our own independent production capabilities, with Kioxia possessing roughly 60% of the overall production capability.
In parallel with the production joint venture, we also have a co-development scheme in place. Under this framework, both companies share equally the costs of NAND flash memory research and development, making the whole process very efficient.

The strength of the supply chain is also a critical issue in manufacturing. We are building strong partnerships with our suppliers on an ongoing basis and working together to address a variety of business continuity planning challenges. Geopolitical tensions, tariff fluctuations, export regulations, and natural disasters consistently pose risks to our supply chain. To mitigate these various risks, we regularly assess and monitor our supply chain and strive to minimize business disruptions. By pursuing supplier diversification and multi-sourcing, we have developed a sourcing system that is resilient to potential disruptions.
We encourage our suppliers to implement their own business continuity planning management. In addition, we conduct risk assessments of our first-tier suppliers, and ensure transparency, including the sources of the raw materials they use.
This is my end of presentation.
Thank you.

Key Message for Today

I would like to end by briefly summarize today's presentations.

Generative AI has entered the phase of practical use, and the storage market for inference workloads is expected to grow going forward. We are committed to technology leadership through innovation, leveraging our competitive devices and our experience in the enterprise market to meet the diversifying need for high-performance, high-capacity storage with low power consumption.
Through disciplined capital investment and the strategic allocation of resources, we will steadily increase our profitability and improve our overall financial position.
We will make our contribution to society—a society that is data-enabled—by providing essential products and services, aiming to increase our corporate value by means of continuous growth.
Thank you for your attention.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