KIOXIA
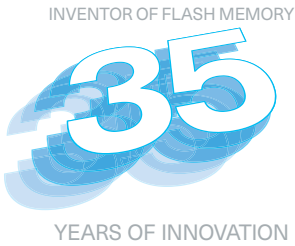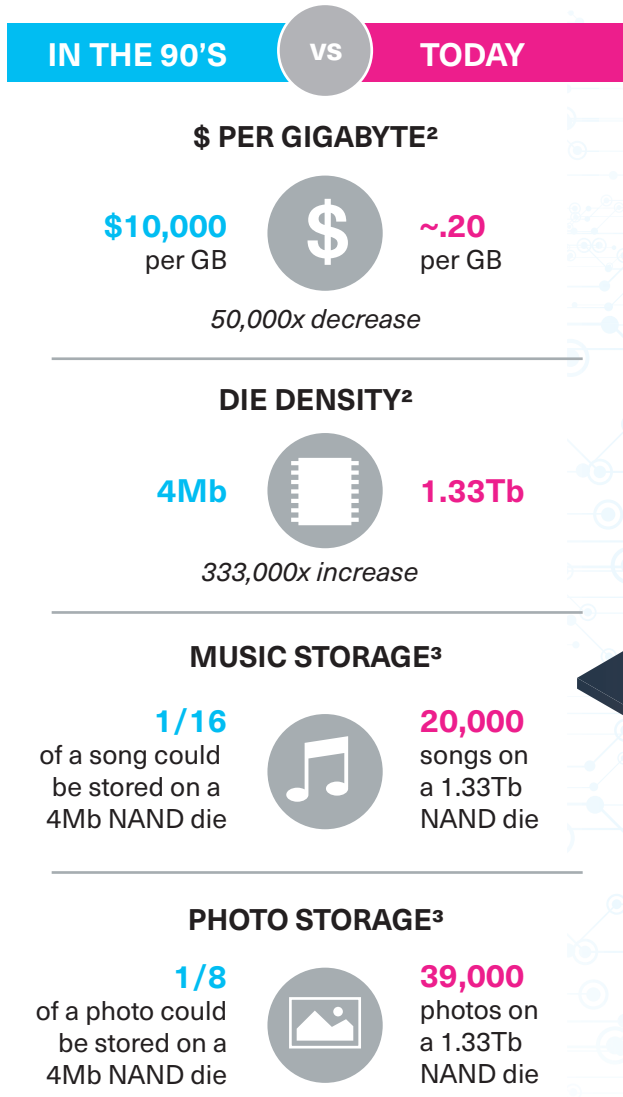
35 Years of NAND Flash Memory

In 1987, KIOXIA invented NAND flash memory – a technology that has had a far-reaching impact on the entire world.

INVENTOR OF FLASH MEMORY

35

YEARS OF INNOVATION

Look How Far We've Come – Flash Facts

IN THE 90'S	VS	TODAY

$ PER GIGABYTE[2]

$10,000 per GB   **~.20** per GB

50,000x decrease

DIE DENSITY[2]

4Mb   **1.33Tb**

333,000x increase

MUSIC STORAGE[3]

1/16 of a song could be stored on a 4Mb NAND die

20,000 songs on a 1.33Tb NAND die

PHOTO STORAGE[3]

1/8 of a photo could be stored on a 4Mb NAND die

39,000 photos on a 1.33Tb NAND die
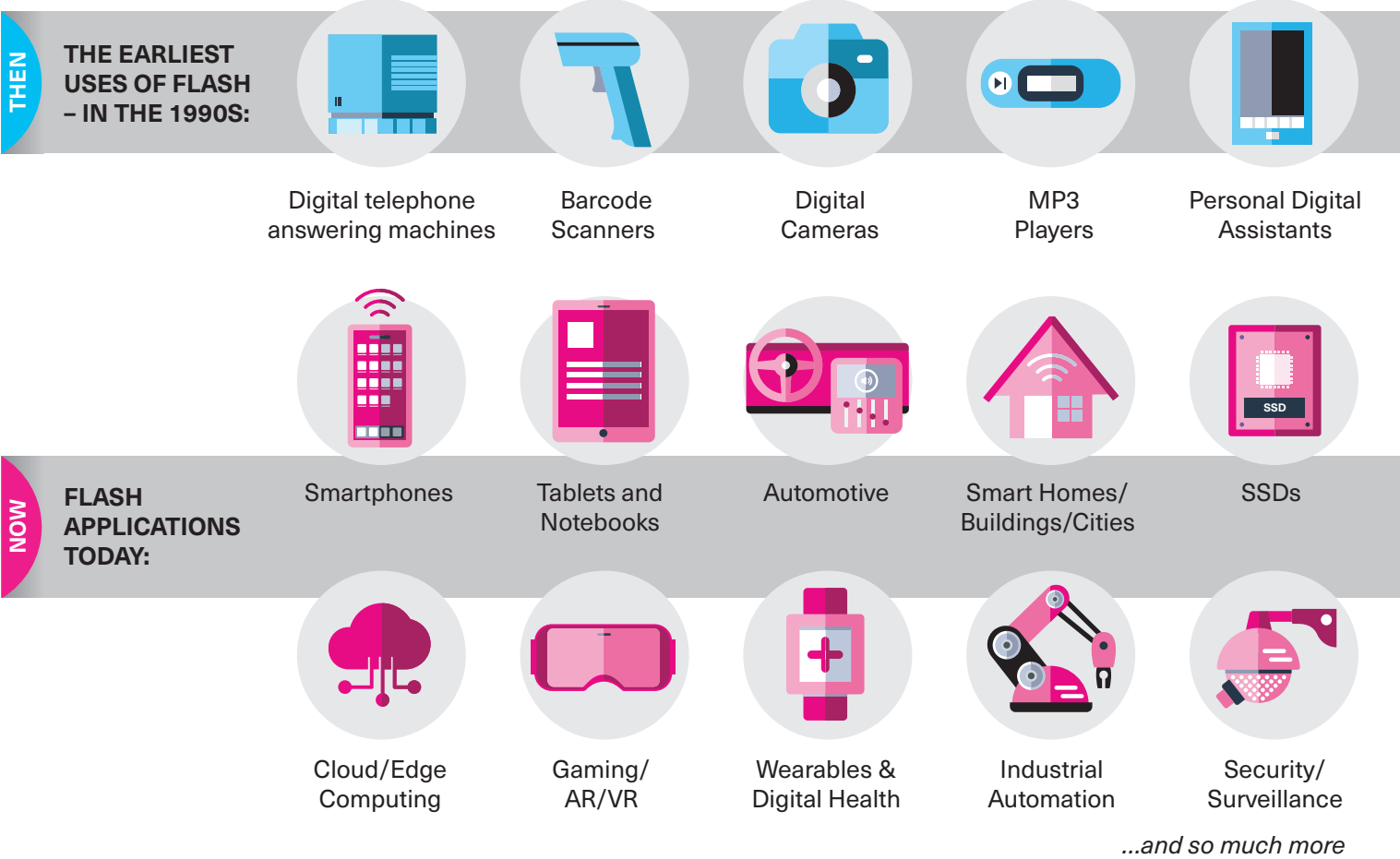
Flash Market Size in 2021[1] $70B

Market Growth

From the 90's to today, the market size for flash memory continues to grow

The Evolution of Applications – From Then to Now

Some of the first flash applications are almost unrecognizable today. And, many new applications have been born that would not have been possible without KIOXIA's invention.

THEN

THE EARLIEST USES OF FLASH – IN THE 1990S:

- Digital telephone answering machines
- Barcode Scanners
- Digital Cameras
- MP3 Players
- Personal Digital Assistants

NOW

FLASH APPLICATIONS TODAY:

- Smartphones
- Tablets and Notebooks
- Automotive
- Smart Homes/ Buildings/Cities
- SSDs
- Cloud/Edge Computing
- Gaming/ AR/VR
- Wearables & Digital Health
- Industrial Automation
- Security/ Surveillance

...and so much more

KIOXIA

KIOXIA delivers flash-based products for next-generation storage applications. Having invented NAND flash 35 years ago, KIOXIA is now one of the world's largest flash memory suppliers – and continues to move the technology forward.

[1] Forward Insights 3Q2021
[2] Based on KIOXIA internal research
[3] Based on KIOXIA calculations. Assuming 8MB per song and 4.2MB per photo.

In every mention of a KIOXIA product: Definition of capacity - KIOXIA Corporation defines a megabyte (MB) as 1,000,000 bytes, a gigabyte (GB) as 1,000,000,000 bytes and a terabyte (TB) as 1,000,000,000,000 bytes. A computer operating system, however, reports storage capacity using powers of 2 for the definition of 1Gb = 230 bits = 1,073,741,824 bits, 1GB = 230 bytes = 1,073,741,824 bytes and 1TB = 240 bytes = 1,099,511,627,776 bytes and therefore shows less storage capacity. Available storage capacity (including examples of various media files) will vary based on file size, formatting, settings, software and operating system, and/or pre-installed software applications, or media content. Actual formatted capacity may vary.