Supercomputers | Artificial Intelligence | Lenovo Specialist

From Core Wars Intel/AMD to Seagate Storage Revolution

#ITguide
#NVIDIAguide
#LENOVOguide

Lukáš Vach | lukas.vach@mcomputers.cz

Agenda

CPU Intel
Xeon 6 and Xeon 6+ Overview

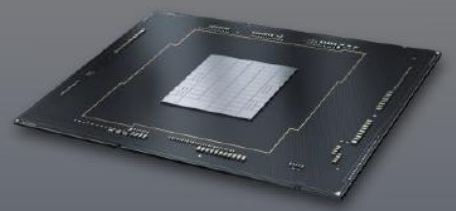
CPU AMD
EPYC 5th Gen and Preparation for 6th Gen

Seagate Mozaic
HAMR at Scale

DRAM Market Analysis
Kingston’s Strategy and Pricing Trends

Intel's Disaggregation Journey

Intel Xeon 3rd Gen
Ice Lake



Monolithic

10nm

Intel Xeon 4th & 5th Gen
Sapphire & Emerald Rapids

Tiles with I/O mem & compute

EMIB

intel 7

Intel Xeon 6
Granite Rapid & Sierra Forest

I/O tiles

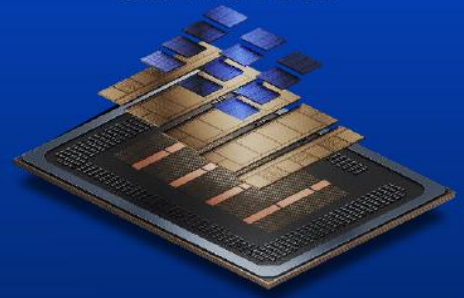
Compute tiles (E-core & P-core)

EMIB

intel 7

intel 3

Intel Xeon 6+
Clearwater Forest



I/O tiles

Base tiles

Compute tiles

EMIB

Foveros Direct 3D

intel 7

intel 3

intel 18A

Intel Xeon Processors are Designed to Meet Market Needs

The best processors to meet diverse performance and efficiency requirements

P-core
Per-core performance

for compute-intensive workloads

Intel® Xeon® 6
Previously codenamed
Granite Rapids

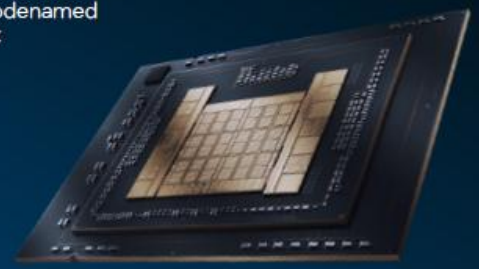
6900P Series • LGA 7529
Up to 128 cores / 256 threads
12-ch DDR5 | MCR DIMM 8800 MT/s
96× PCIe 5.0 | TDP: up to 500 W

6700P / 6500P Series • LGA 4710
Up to 86 cores / 172 threads
8-ch DDR5 | RDIMM/MCR DIMM
96× PCIe 5.0 | TDP: up to 350 W

E-core
Performance per watt

for high-density compute and
scale-out workloads

Intel® Xeon® 6
Previously codenamed
Sierra Forest



6900E Series • LGA 7529
Up to 288 cores / 288 threads
12-ch DDR5 | RDIMM 6400 MT/s
96× PCIe 5.0 | TDP: up to 500 W

6700E / 6500E Series • LGA 4710
Up to 144 cores / 144 threads
8-ch DDR5 | RDIMM 6400 MT/s
88× PCIe 5.0 | TDP: up to 250 W

Introducing Intel® Xeon® 6+

First 18A CPU in the data center

P-core

Per-core performance

for compute-intensive workloads

Intel® Xeon® 6

Previously codenamed
Granite Rapids

E-Cores • Clearwater Forest

Up to 288 Darkmont E-cores
12-ch DDR5-8000 | 576 MB LLC
96× PCIe 5.0 | TDP: 300–500 W

Intel 18A process | Foveros Direct 3D
12 compute tiles | Glass Core substrate
17% IPC uplift vs Sierra Forest

E-core

Performance per watt

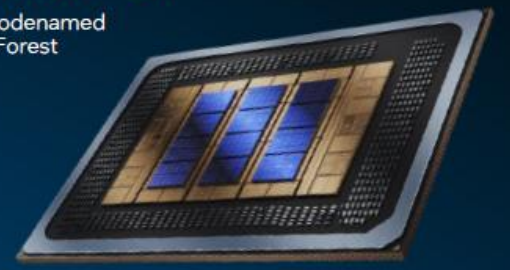
for high-density compute and
scale-out workloads

Intel® Xeon® 6

Previously codenamed
Sierra Forest

Intel® Xeon® 6+

Previously codenamed
Clearwater Forest



Multiplexed Rank DIMM (MRDIMM)

~~Multiplexed Combined Rank DIMM (MCR DIMM)~~

Granite Rapids-SP/AP

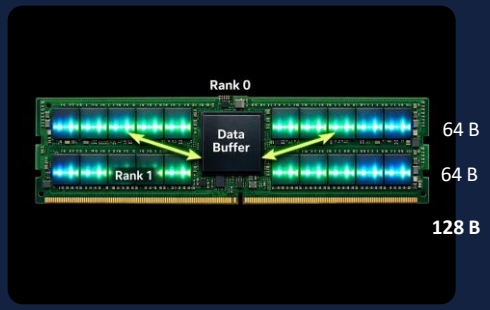
Clearwater Forest-AP

MRDIMM is an innovative DDR5 DIMM technology that delivers ~30% greater memory bandwidth over RDIMM with expected data transfer rate begin in 8800 MT/s, making it the fastest DDR5 DIMM available and supported in Xeon 6, 6+ and AMD Epyc 6th gen. CPU platforms for customers looking for the highest memory performance.

How It Works

Dual Rank RDIMM

Only 1 rank is active during a R/W cycle based on CS. Each rank operates independently to achieve rated speed.



Dual Rank MCR DIMM (MRDIMM)

Two ranks operate simultaneously to combine data lines using buffer chips located above edge fingers to achieve higher data rate.

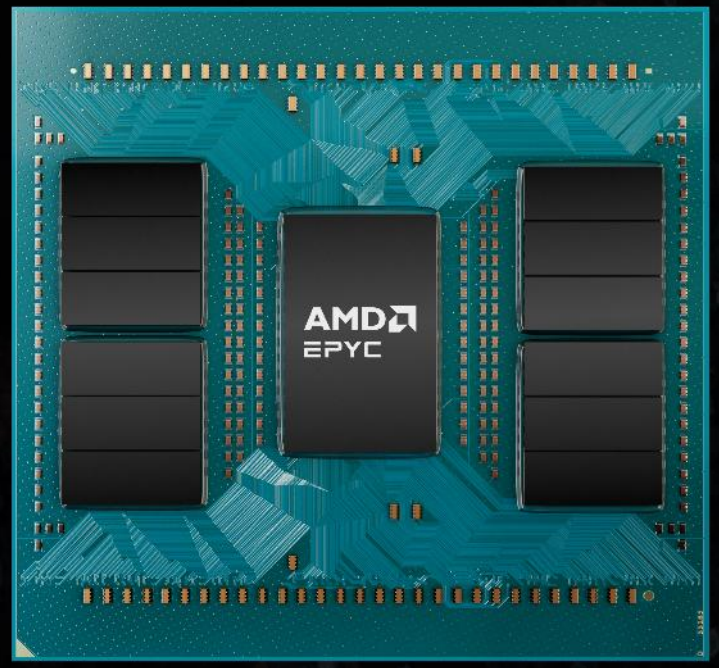
MRDIMM Highlights

- Enables simultaneous operation of two ranks by utilizing the data buffer assembled onto the MRDIMM.
- By simultaneous operation of two ranks, MRDIMM allows transmission of 128 bytes of data to CPU at once, compared with 64 bytes fetched in conventional DRAM module.
- An increase in the amount of data sent to the CPU in each burst enables a data transfer rate greater than RDIMM.
- MRDIMM maintains the same DIMM form factor to support drop in compatibility.
- All reliability features of DDR5 are supported.

In comparison to DDR5-6400 RDIMM. MRDIMM refers to the standard led JEDEC nomenclature, underlying approval.

Introducing
5th Gen AMD EPYC™ Processors

Formerly codenamed "**Turin**"



World's best CPU for cloud, enterprise & AI

ZEN 5 **TSMC 3/4nm**	Up to **192 cores** Up to **384 threads**	Up to **5GHz** **AVX512** full 512b data path	**17% IPC Uplift**	**SP5 Platform** Compatible with "Genoa"

As of 1/21/2025. See endnote: 9xx5-001, 048, EPYC-029C, EPYC-039A

5th Gen AMD EPYC™ SoC

Socekt SP5 – the same as a Epyc 4th Gen (Genoa)

Blue text indicates significant update from "Zen 4"

Compute

- AMD "Zen5/Zen5c" x86 cores
  - "Zen5" up to 16 CCDs / 128 cores / 256 threads
  - "Zen5c" up to 12 CCDs / 192 cores / 384 threads
- 1MB L2/Core, Up to 32MB L3 per CCD

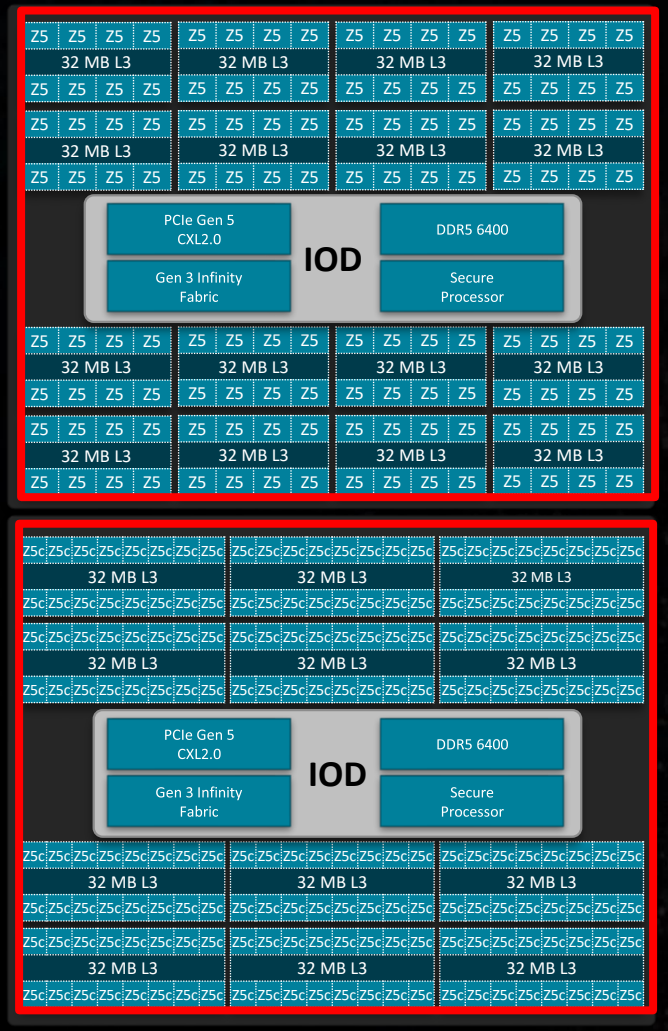
- ISA Updates: AVX-512 with 512b data path

- Infinity Fabric: 3rd-gen MCM (32+Gbps die-to-die)

- Dynamic PPR for x4 and x8 ECC RDIMMs
- BMC MCA Crash-Dump
- MCA over APML

SP5 Platform

- BIOS Update Required
- 2P and 1P Configurations
- Up to 4 links of 32Gbps Gen 3 Infinity Fabric™
- Compatible with "Genoa IRM" Groups up to 400W
- 500W IRM option for maximum performance
- Flexible topology options
- Server Controller Hub (USB, UART, SPI, I2C, etc.)



Memory

- 12 channel DDR5 with ECC up to 6400 MT/s
- Support for 2, 4, 6, 8, 10, 12 channel memory interleaving
- RDIMM, 3DS RDIMM
- Up to 2 DIMMs/channel capacity of 6TB/socket (256GB 3DS RDIMMs)

I/O

- 2P: up to 160 lanes of PCIe Gen5 with speeds up to 32Gbps/lane
  - up to 12 bonus PCIe Gen3 lanes
- 1P: 128 lanes of PCIe Gen5 with speeds up to 32Gbps/lane
  - up to 8 bonus PCIe Gen3 lanes
- PCIe bifurcations supported: x16, x8, x4, x2 and x1
- PCIe link encryption[2]
- CXL® 2.0, 4 x16 Capable "P" links; Type 3, Type 1[2], Type 2[2] PoC
- Up to 32 IO lanes for SATA
- SDCI (Smart Data Cache Injection)

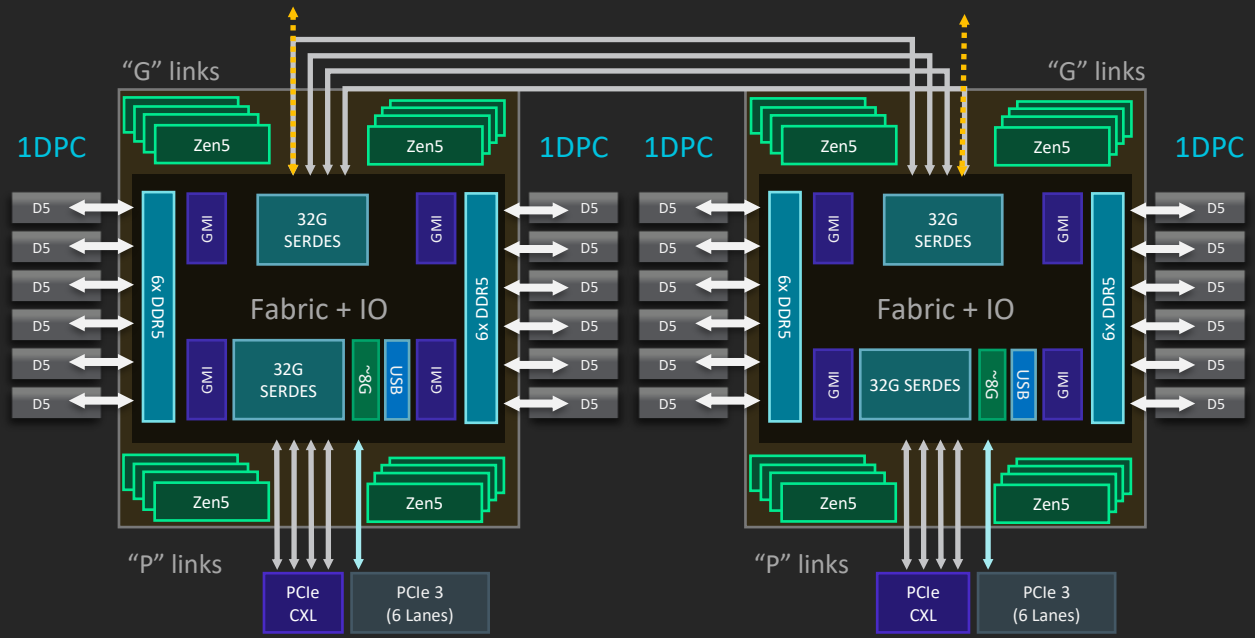
Security[1]

- Trusted IO
- Dedicated Security Subsystem with enhancements
- Hardware Root-of-Trust; Ciphertext-hiding capability

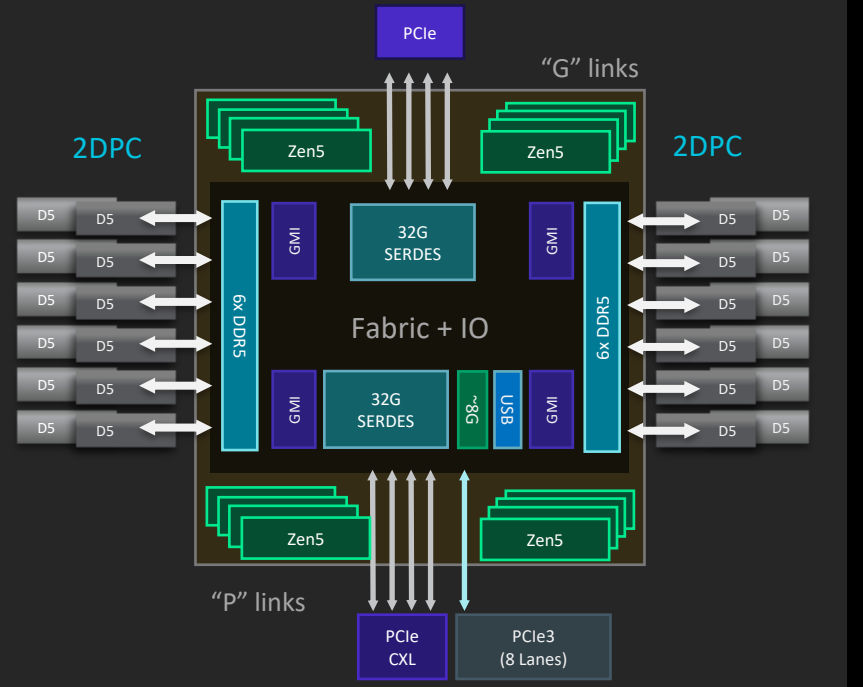
1 - AMD Infinity Guard features vary by EPYC™ Processor generations and/or series. Infinity Guard security features must be enabled by server OEMs and/or Cloud Service Providers to operate. Check with your OEM or provider to confirm support of these features. Learn more about Infinity Guard at https://www.amd.com/en/technologies/infinity-guard. GD-183A
2 - CXL Type 1&2 devices and PCIe link encryption support dependent upon ecosystem readiness
See endnotes: 9xx5-083A

5th Gen AMD EPYC™ SoC Platform Overview

2P Configuration



1P Configuration



Strong upgrade to existing SP5 (4th Gen AMD EPYC™ CPU) in the same platforms

- **25% improvement in DRAM speed (4800 -> up to 6400) using JEDEC-standard (non-proprietary) DIMMs**
- **1P PCIe® aggregate bandwidth improvement due to internal SOC topology changes**
- **Enhanced platform option for 500W TDP capability**

*See endnotes: 9xx5-083A

Turin Stack Reference: October 10, 2024

Product ID Tray	Model	CCD Type	Cores	Max. Boost Clock	Base Clock	L3 Cache	1kU Pricing	Default TDP	cTDP	Socket Count	DDR Max*
100-000000976	9965	Zen5c	192	3.7	2.25	384	$ 14,813	500	450-500	2.0	6400
100-000001458	9845	Zen5c	160	3.7	2.1	320	$ 13,564	390	320-400	2.0	6400
100-000000837	9825	Zen5c	144	3.7	2.2	384	$ 13,006	390	320-400	2.0	6400
100-000001443	9755	Zen5	128	4.1	2.7	512	$ 12,984	500	450-500	2.0	6400
100-000001460	9745	Zen5c	128	3.7	2.4	256	$ 12,141	400	320-400	2.0	6400
100-000000674	9655	Zen5	96	4.5	2.6	384	$ 11,852	400	320-400	2.0	6400
100-000001522	9655P	Zen5	96	4.5	2.6	384	$ 10,811	400	320-400	1.0	6400
100-000001461	9645	Zen5c	96	3.7	2.3	256	$ 11,048	320	320-400	2.0	6400
100-000001447	9565	Zen5	72	4.3	3.15	384	$ 10,486	400	320-400	2.0	6400
100-000001554	9575F	Zen5	64	5	3.3	256	$ 11,791	400	320-400	2.0	6400
100-000001142	9555	Zen5	64	4.4	3.2	256	$ 9,826	360	320-400	2.0	6400
100-000001523	9555P	Zen5	64	4.4	3.2	256	$ 7,983	360	320-400	1.0	6400
100-000001147	9535	Zen5	64	4.3	2.4	256	$ 8,992	300	240-300	2.0	6400
100-000001143	9475F	Zen5	48	4.8	3.65	256	$ 7,592	400	320-400	2.0	6400
100-000001542	9455	Zen5	48	4.4	3.15	256	$ 5,412	300	240-300	2.0	6400
100-000001563	9455P	Zen5	48	4.4	3.15	256	$ 4,819	300	240-300	1.0	6400
100-000001448	9365	Zen5	36	4.3	3.4	192	$ 4,341	300	240-300	2.0	6400
100-000001197	9375F	Zen5	32	4.8	3.85	256	$ 5,306	320	320-400	2.0	6400
100-000001148	9355	Zen5	32	4.4	3.55	256	$ 3,694	280	240-300	2.0	6400
100-000001521	9355P	Zen5	32	4.4	3.55	256	$ 2,998	280	240-300	1.0	6400
100-000001149	9335	Zen5	32	4.4	3	128	$ 3,178	210	200-240	2.0	6400
100-000001144	9275F	Zen5	24	4.8	4.1	256	$ 3,439	320	320-400	2.0	6400
100-000000694	9255	Zen5	24	4.3	3.25	128	$ 2,495	200	200-240	2.0	6400
100-000001145	9175F	Zen5	16	5	4.2	512	$ 4,256	320	320-400	2.0	6400
100-000001150	9135	Zen5	16	4.3	3.65	64	$ 1,214	200	200-240	2.0	6400
100-000001552	9115	Zen5	16	4.1	2.6	64	$ 726	125	120-155	2.0	6400
100-000001553	9015	Zen5	8	4.1	3.6	64	$ 527	125	120-155	2.0	6400

*EPYC 9005 series processors support DDR5-6400 for targeted customers and configurations. See endnote 9xx5-083
As of 10/10/2024.

Compare of SPEC (Intel/AMD)

Intel Xeon 2x 6767P (Total 128-core)
64-core, 2,4GHz, 336 MB L3 cache

SPEC CPU®2017 Integer Speed Result

Dell Inc.

PowerEdge R670 (Intel Xeon 6767P)

SPECspeed®2017_int_base = 14.3

SPECspeed®2017_int_peak = 14.4

CPU2017 License: 6573
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

Test Date: Mar-2025
Hardware Availability: Mar-2025
Software Availability: Jun-2024

SPEC CPU®2017 Floating Point Rate Result

Dell Inc.

PowerEdge R670 (Intel Xeon 6767P)

SPECrate®2017_fp_base = 1450

SPECrate®2017_fp_peak = 1500

CPU2017 License: 6573
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

Test Date: Mar-2025
Hardware Availability: Mar-2025
Software Availability: Jun-2024

AMD Epyc 9555 (Total 128-core)
64-core, 3,2GHz, 256 MB L3 cache

SPEC CPU®2017 Integer Speed Result

ASUSTeK Computer Inc.

ASUS RS720A-E13-RS8U
(3.20 GHz, AMD EPYC 9555)

SPECspeed®2017_int_base = 19.4

SPECspeed®2017_int_peak = 19.7

CPU2017 License: 9016
Test Sponsor: ASUSTeK Computer Inc.
Tested by: ASUSTeK Computer Inc.

Test Date: Jul-2025
Hardware Availability: Mar-2025
Software Availability: Oct-2024

SPEC CPU®2017 Floating Point Rate Result

ASUSTeK Computer Inc.

ASUS RS720A-E13-RS8U
(3.20 GHz, AMD EPYC 9555)

SPECrate®2017_fp_base = 1820

SPECrate®2017_fp_peak = 1970

CPU2017 License: 9016
Test Sponsor: ASUSTeK Computer Inc.
Tested by: ASUSTeK Computer Inc.

Test Date: Jul-2025
Hardware Availability: Mar-2025
Software Availability: Oct-2024

Intel vs AMD — Server Processor Comparison

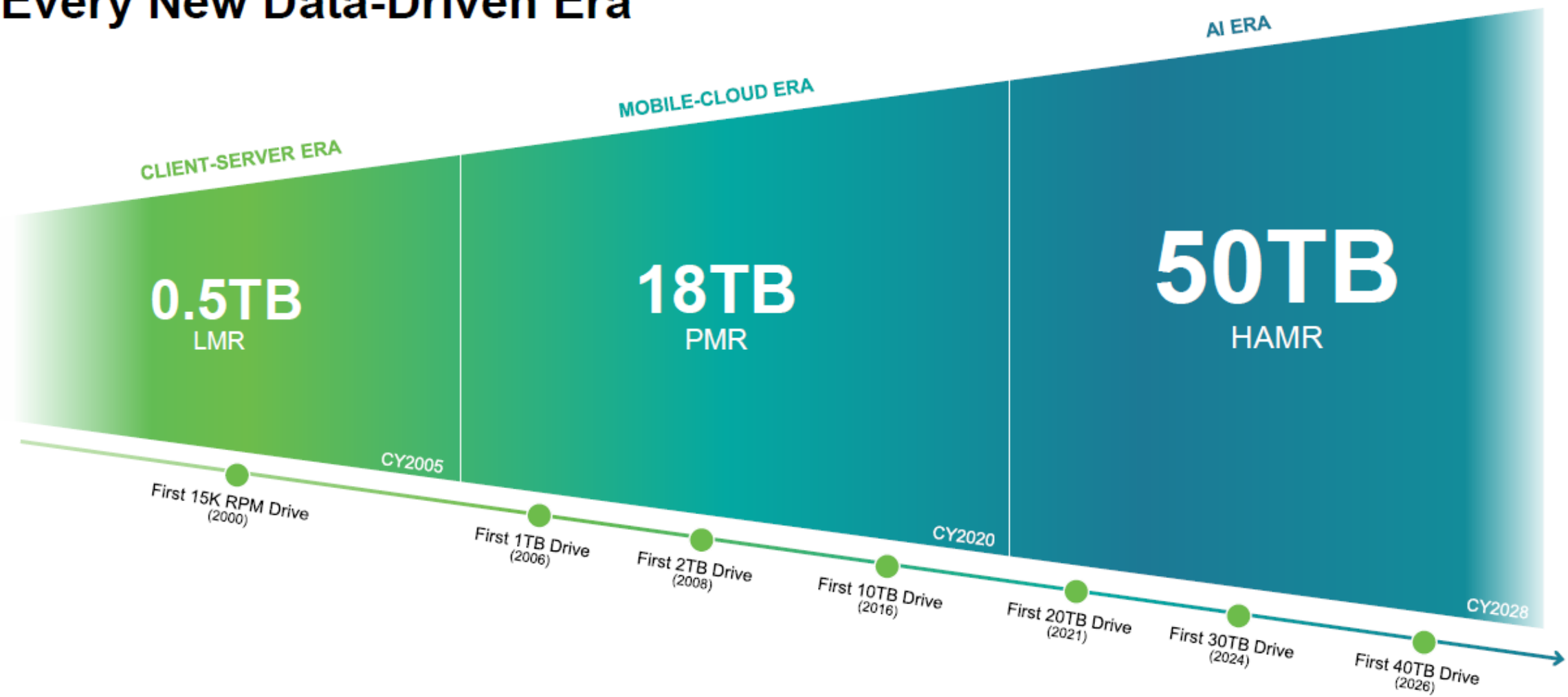
mcomputers

	INTEL		AMD	
Feature	**Intel Xeon 6**	**Intel Xeon 6+**	**AMD EPYC Turin (5th Gen)**	**AMD EPYC Venice (6th Gen)**
Codename	Granite Rapids / Sierra Forest	Clearwater Forest	Turin / Turin Dense	Venice
Core Architecture	Redwood Cove (P) / Crestmont (E)	Darkmont (E-cores)	Zen 5 (P) / Zen 5c (Dense)	Zen 6 (P) / Zen 6c (Dense)
Process Node	Intel 3 (3nm-class)	Intel 18A (1.8nm)	TSMC 3nm (CCD) + 4nm (IOD)	TSMC 2nm (CCD) + 4nm (IOD)
Max Core Count	Up to 128 P / 288 E	Up to 288 E-cores	Up to 96 Zen 5 / 192 Zen 5c	Up to 96 Zen 6 / 256 Zen 6c
Max Thread Count	256 (P) / 288 (E)	288 threads	192 (Zen 5) / 384 (Zen 5c)	192 (Zen 6) / 512 (Zen 6c)
Max L3 Cache	Up to 504 MB	High-density 3D Fabric	Up to 512 MB	Up to 1 TB (Multi-CCD)
Memory Channels	8-channel / 12-channel DDR5	12-channel DDR5	12-channel DDR5	16-channel DDR5
Memory Speed	Up to 6400 MT/s (MCR to 8800)	Up to DDR5-8000	Up to 6400 MT/s	Up to 8000 (MRDIMM to 12,800)
PCIe / CXL	PCIe 5.0 / CXL 2.0	PCIe 5.0 / CXL 2.0	PCIe 5.0 / CXL 2.0	PCIe 6.0 / CXL 3.0
Max TDP	Up to 500W	Optimized for Telco/Cloud	Up to 400W (configurable)	Up to 600W (SP7)
Socket	LGA 4710 / LGA 7529	LGA 7529 (Compatible)	SP5	SP7 / SP8
Availability	Available Now	Launched Q1 2026	Available Now	Expected Mid-to-Late 2026

SEAGATE

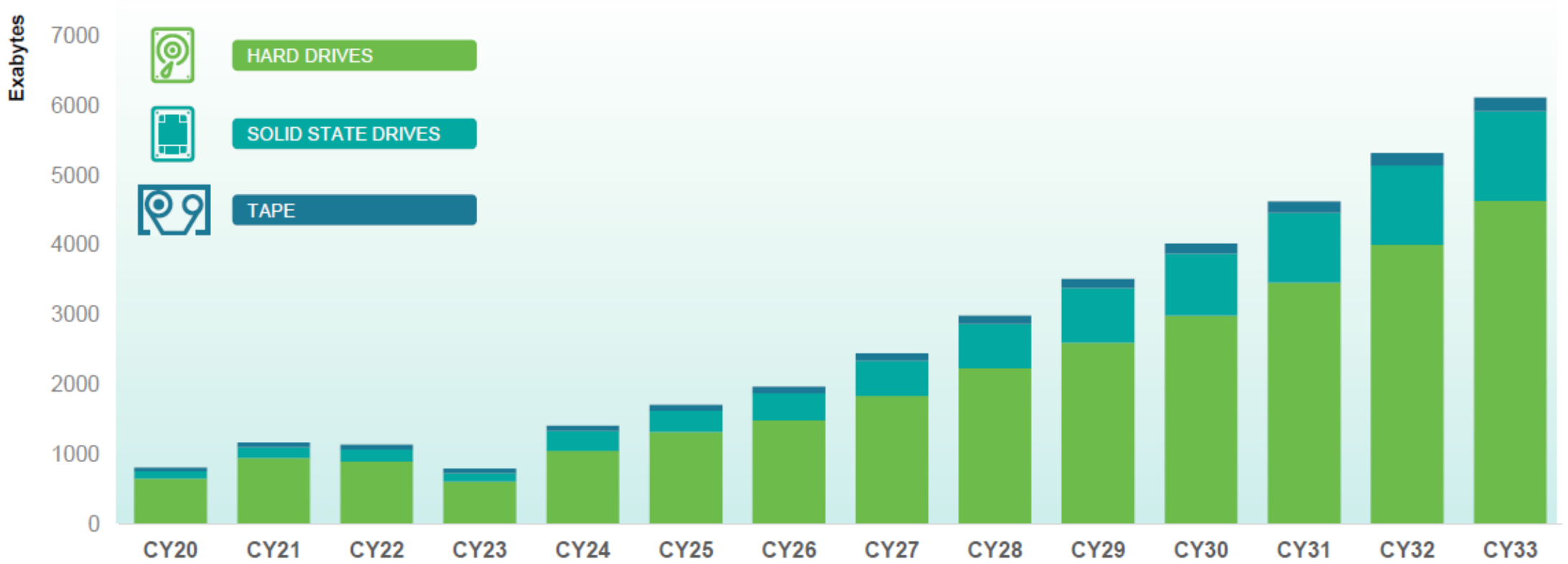
AI is data. Data is storage.
Storage is **Seagate**!

Seagate's Storage Innovation Enabling Every New Data-Driven Era



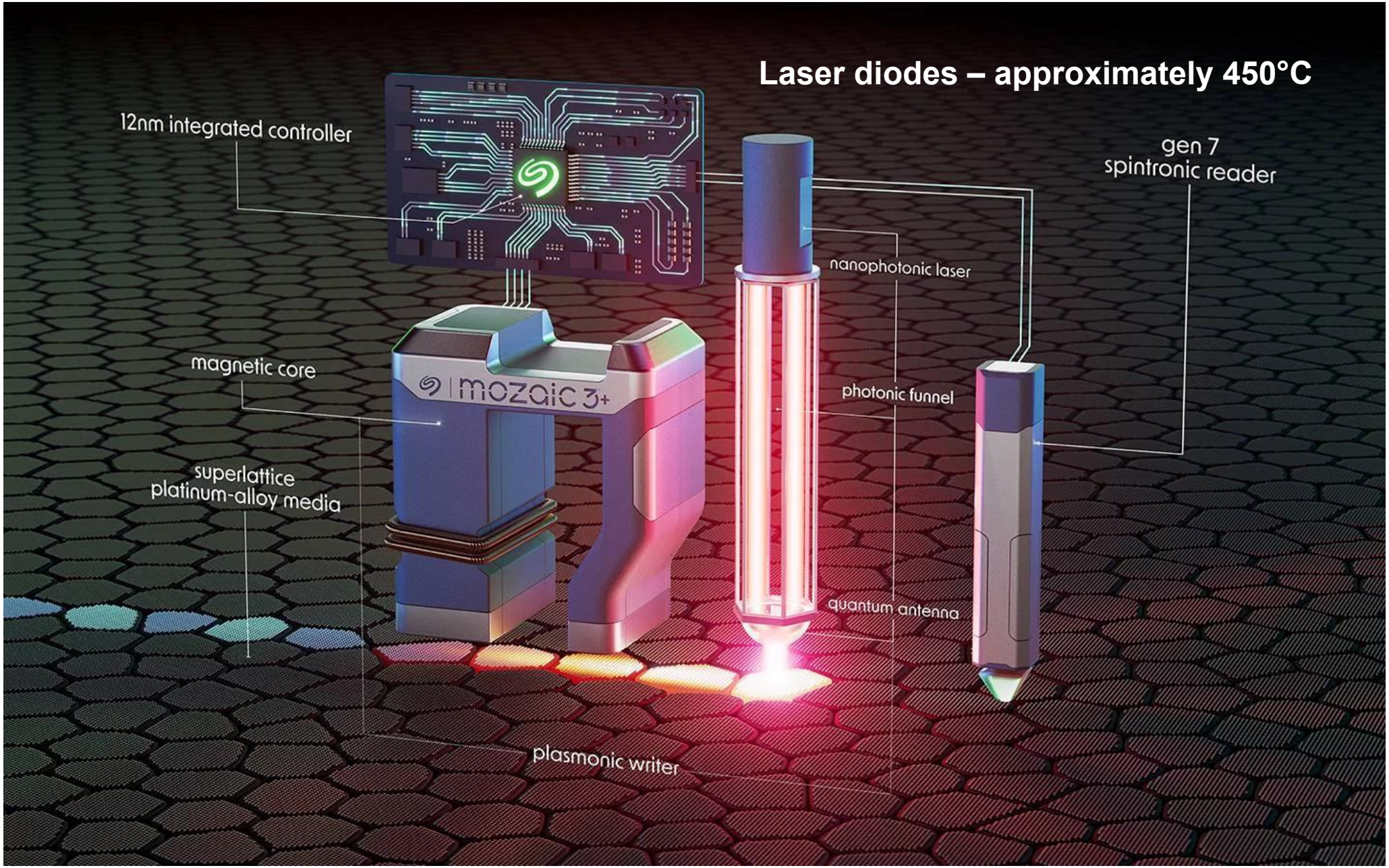
ENTERPRISE SCALE

The ecosystem demands diverse memory and storage solutions to support evolving AI architectures



Hard Drive Capacity Scaling is Reaching Limits With PMR Technology

	CY2010		CY2015			CY2020					CY2025
# Disks / Drive	5		6	7	8	9	10				
Areal Density (TB / Disk)	PMR										HAMR
	0.6	0.8	1.0	1.33	1.43	1.5	1.75	1.78	2.0	2.0	2.2	2.4	3.0
Drive Capacity (TB / Drive)	3	4	6	8	10	12	14	16	18	20	22	24	30


Laser diodes – approximately 450°C
12nm integrated controller
gen 7
spintronic reader
nanophotonic laser
magnetic core
mozaic 3+
photonic funnel
superlattice
platinum-alloy media
quantum antenna
plasmonic writer

Exos

4 TB+ per disk. Up to 44 TB per drive.

With category-defining areal density of 4 TB+ per disk, Mozaic unlocks hard drive capacities up to 44 TB while preserving a highly efficient 10-disk architecture — allowing data centres to increase storage capacity without expanding physical footprint.

Market & Business Highlights

Kingston TECHNOLOGY

- DDR4 server grade DRAM supply is extremely tight. Any remaining server-grade output will be prioritized by the semiconductor suppliers to support large CSP's and data center customers, which have the highest margins. DDR4 server-grade DRAM pricing has doubled over the last 2 months.
- DDR4 PC supply has stabilized, but mainly for 8Gbit x8 chips. 16Gbit wafer output is prioritized for DDR4 server demand.
  - Kingston's DDR4 PC-grade supply is stable. We expect consistent supply through 2025 and into 2026.
- DDR5 server demand surged as CSPs and DCs continue the "AI arms race." All DRAM semiconductor suppliers are citing severe shortages for at least the next 3 quarters.
- DRAM production output now prioritizes HBM, LPDDR5X, and DDR5 server grade, significantly reducing PC grade.
- Kingston still maintains stable DDR5 supply based on our LTA agreements, but we expect supply to continue to tighten and costs to be pushed up by the suppliers.

DDR5 SPECIFICATIONS

Form Factors
288-pin DIMM
262-pin SODIMM

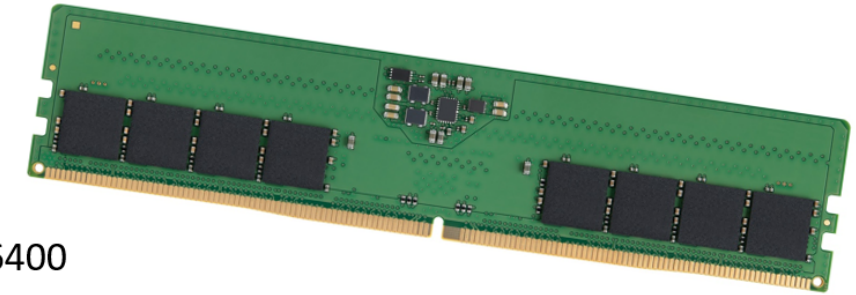
Performance (in MT/s)
4400 / **4800** / 5200 / 5600 / 6000 / 6400

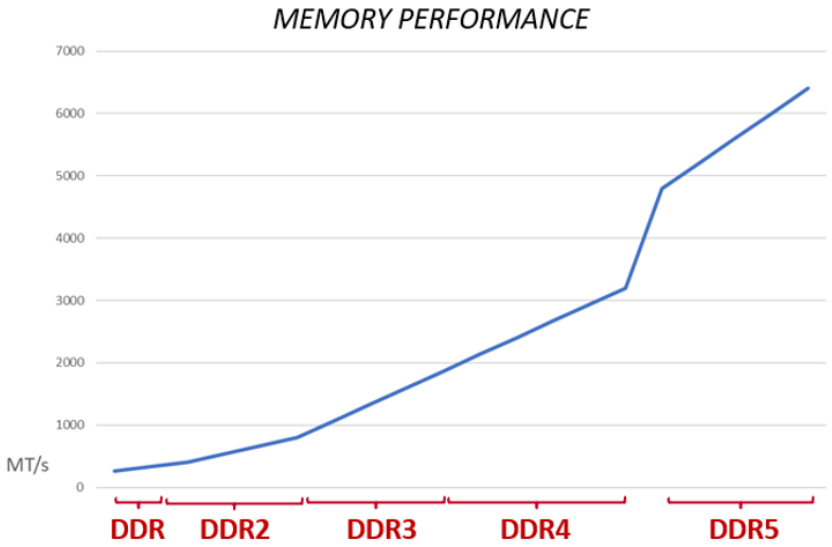
Power
1.1 V
12V for Hybrid DIMM (3-pins)

DRAM Densities / DIMM Capacities
8Gb, **16Gb**, 24Gb, 32Gb (x4, x8, x16)

8GB, 12GB, 16GB, 24GB, 32GB,
48GB, 64GB, 96GB, 128GB, 192GB
256GB, 384GB, 512GB

Module Types
Registered DIMM
Load Reduced DIMM
ECC Unbuffered DIMM / SODIMM
Non-ECC Unbuffered DIMM / SODIMM



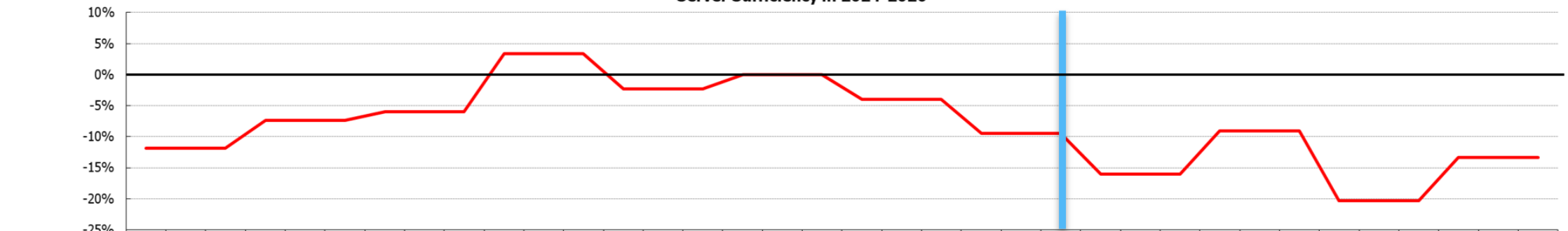


JEDEC Industry Standard Specifications

Description		DDR5
Data Rates (Speed in MT/s)		4000, 4400, 4800, 5200, 5600, 6000, 6400 MT/s
Monolithic DRAM Densities (Gbit)		8Gb, 16Gb, 24Gb, 32Gb, 48Gb, 64Gb
Package Type and Ballout (x4, x8 / x16)		BGA, 3DS TSV (78, 82 / 102)
Interface	Voltage (V_{DD} / V_{DDQ} / V_{PP})	1.1 / 1.1 / 1.8 V
	Internal V_{REF}	V_{REFDQ}, V_{REFCA}, V_{REFCS}
	Command/Address	POD (Pseudo Open Drain)
	Equalization	DFE (Dynamic Feedback Equalization)
	Burst Length	BL16 / BC8 / BL32 (optional)
Core Architecture	Number of Banks	32 Banks (8 Bank Groups) 8 BG x 4 banks (16-64Gb x4/x8) 8 BG x 2 banks (8Gb x4/x8) 16 Banks (4 Bank Groups) 4 BG x 4 banks (16-64Gb x16) 4 BG x 2 banks (8Gb x16)
	Page Size (x4 / x8 / x16)	1KB / 1KB / 2KB
	Prefetch	16n
	DCA (Duty Cycle Adjustment)	DQS and DQ
	Internal DQS Delay Monitoring	DQS interval oscillator
	ODECC (On-die ECC)	128b+8b SEC error check and scrub
	CRC (Cyclic Redundancy Check)	Read/Write
	ODT (On-die Termination)	DQ, DQS, DM, CA bus
	MIR ("Mirror" pin)	Yes
	Bus Inversion	Command/address inversion (CAI)
	CA Training, CS Training	CA training, CS training
	Write Leveling Training Modes	Improved
	Read Training Patterns	Dedicated MRs for user-defined serial, clock, and LFSR - generated training patterns
	Mode registers	Up to 256 x 8 bits
	PRECHARGE Commands	All bank, per bank, and same bank
	REFRESH Commands	All bank and same bank
	Loopback Mode	Yes

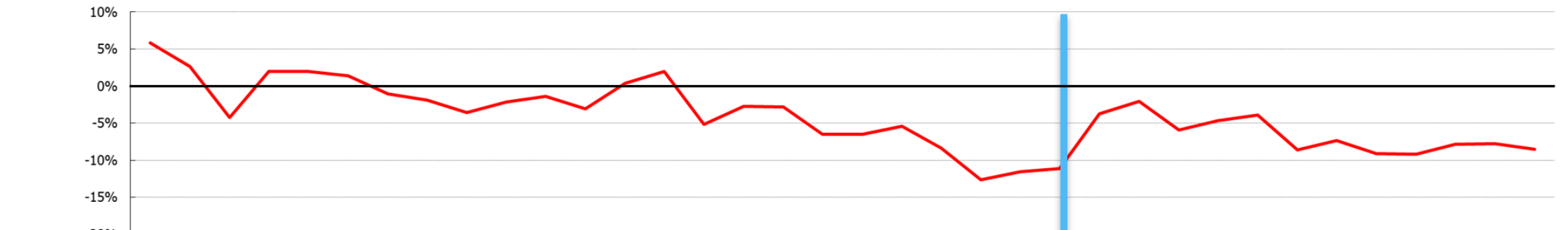
Global Supply Sufficiency

Server Sufficiency in 2024-2026



	Jan 24	Feb 24	Mar 24	Apr 24	May 24	Jun 24	July 24	Aug 24	Sep 24	Oct 24	Nov 24	Dec 24	Jan 25	Feb 25	Mar 25	Apr 25	May 25	Jun 25	July 25	Aug 25	Sep 25	Oct 25	Nov 25	Dec 25	Jan 26	Feb 26	Mar 26	Apr 26	May 26	Jun 26	July 26	Aug 26	Sep 26	Oct 26	Nov 26	Dec 26
Sufficiency (%)	-11.8	-11.8	-11.8	-7.4%	-7.4%	-7.4%	-6.0%	-6.0%	-6.0%	3.4%	3.4%	3.4%	-2.3%	-2.3%	-2.3%	0.0%	0.0%	0.0%	-4.0%	-4.0%	-4.0%	-9.5%	-9.5%	-9.5%	-16.0	-16.0	-16.0	-9.1%	-9.1%	-9.1%	-20.3	-20.3	-20.3	-13.4	-13.4	-13.4

PC Sufficiency in 2024-2026

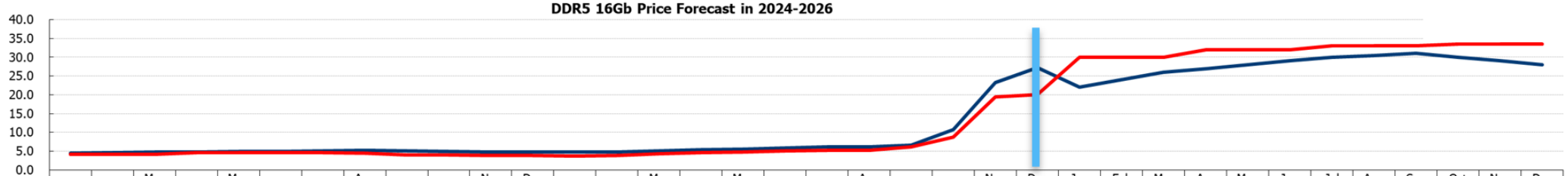


	Jan 24	Feb 24	Mar 24	Apr 24	May 24	Jun 24	July 24	Aug 24	Sep 24	Oct 24	Nov 24	Dec 24	Jan 25	Feb 25	Mar 25	Apr 25	May 25	Jun 25	July 25	Aug 25	Sep 25	Oct 25	Nov 25	Dec 25	Jan 26	Feb 26	Mar 26	Apr 26	May 26	Jun 26	July 26	Aug 26	Sep 26	Oct 26	Nov 26	Dec 26
Sufficiency (%)	5.8%	2.7%	-4.2%	2.0%	2.0%	1.4%	-1.0%	-1.9%	-3.6%	-2.1%	-1.4%	-3.0%	0.4%	2.0%	-5.2%	-2.7%	-2.8%	-6.5%	-6.5%	-5.4%	-8.4%	-12.6	-11.5	-11.1	-3.8%	-2.0%	-5.9%	-4.7%	-3.9%	-8.6%	-7.4%	-9.1%	-9.2%	-7.9%	-7.8%	-8.5%

Source: Trendforce 12/2025

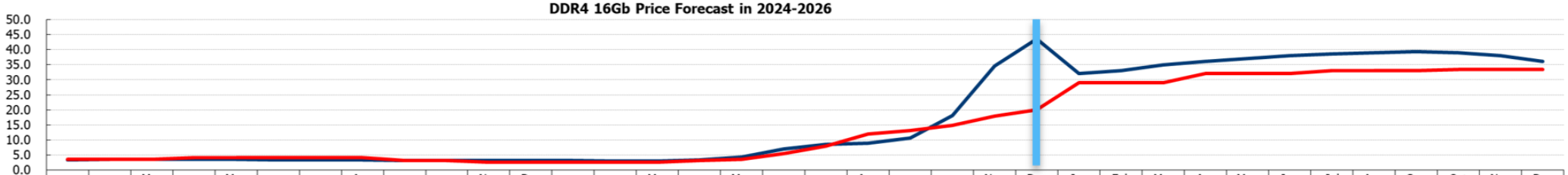
Price Forecast

DDR5 16Gb Price Forecast in 2024-2026



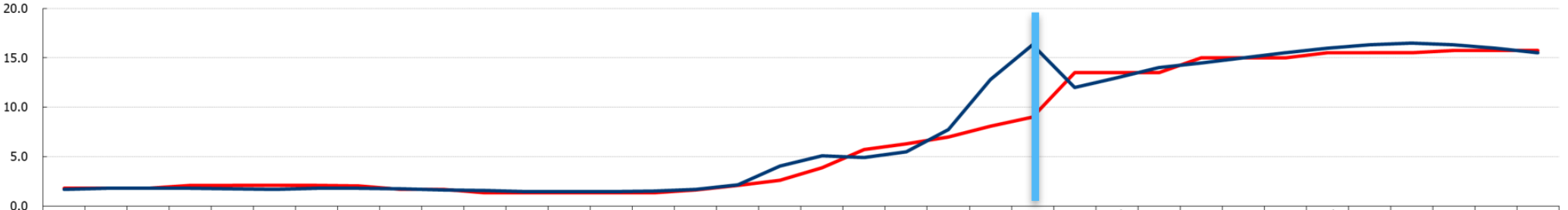
	Jan 24	Feb 24	Mar 24	Apr 24	May 24	Jun 24	Jul 24	Aug 24	Sep 24	Oct 24	Nov 24	Dec 24	Jan 25	Feb 25	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25	Oct 25	Nov 25	Dec 25E	Jan 26F	Feb 26F	Mar 26F	Apr 26F	May 26F	Jun 26F	Jul 26F	Aug 26F	Sep 26F	Oct 26F	Nov 26F	Dec 26F
DDR5 16Gb, 2Gx8 Spot	4.38	4.67	4.70	4.78	4.89	4.85	5.00	5.14	5.00	4.87	4.79	4.72	4.68	4.77	5.10	5.40	5.52	5.85	6.11	6.12	6.57	10.66	23.22	27.20	22.00	24.00	26.00	27.00	28.00	29.00	30.00	30.50	31.00	30.00	29.00	28.00
DDR5 16Gb, 2Gx8 Contract	4.10	4.10	4.10	4.65	4.65	4.65	4.65	4.50	4.05	4.05	3.90	3.90	3.75	3.80	4.25	4.60	4.80	5.10	5.25	5.25	6.10	8.70	19.50	20.00	30.00	30.00	30.00	32.00	32.00	32.00	33.00	33.00	33.00	33.50	33.50	33.50

DDR4 16Gb Price Forecast in 2024-2026



	Jan 24	Feb 24	Mar 24	Apr 24	May 24	Jun 24	Jul 24	Aug 24	Sep 24	Oct 24	Nov 24	Dec 24	Jan 25	Feb 25	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25	Oct 25	Nov 25	Dec 25E	Jan 26F	Feb 26F	Mar 26F	Apr 26F	May 26F	Jun 26F	Jul 26F	Aug 26F	Sep 26F	Oct 26F	Nov 26F	Dec 26F
DDR4 16Gb, 2Gx8 Spot	3.46	3.56	3.55	3.53	3.55	3.39	3.46	3.42	3.29	3.24	3.20	3.19	3.15	3.02	3.02	3.40	4.33	7.01	8.54	8.91	10.70	18.05	34.51	43.63	32.00	33.00	35.00	36.00	37.00	38.00	38.50	39.00	39.40	39.00	38.00	36.00
DDR4 16Gb, 2Gx8 Contract	3.60	3.60	3.60	4.20	4.20	4.20	4.20	4.10	3.20	3.20	2.55	2.55	2.55	2.55	2.55	3.20	3.60	5.50	8.00	12.00	13.20	14.80	18.00	20.00	29.00	29.00	29.00	32.00	32.00	32.00	33.00	33.00	33.00	33.50	33.50	33.50

DDR4 8Gb Price Forecast in 2024-2026



	Jan 24	Feb 24	Mar 24	Apr 24	May 24	Jun 24	Jul 24	Aug 24	Sep 24	Oct 24	Nov 24	Dec 24	Jan 25	Feb 25	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25	Oct 25	Nov 25	Dec 25E	Jan 26F	Feb 26F	Mar 26F	Apr 26F	May 26F	Jun 26F	Jul 26F	Aug 26F	Sep 26F	Oct 26F	Nov 26F	Dec 26F
DDR4 8Gb, 1Gx8 Contract	1.80	1.80	1.80	2.10	2.10	2.10	2.10	2.05	1.70	1.70	1.35	1.35	1.35	1.35	1.35	1.65	2.10	2.60	3.90	5.70	6.30	7.00	8.10	9.00	13.50	13.50	13.50	15.00	15.00	15.00	15.50	15.50	15.50	15.75	15.75	15.75
DDR4 8Gb, 1Gx8 Spot	1.72	1.82	1.79	1.79	1.75	1.72	1.82	1.81	1.73	1.65	1.56	1.47	1.46	1.45	1.50	1.70	2.18	4.08	5.08	4.92	5.49	7.76	12.78	16.31	12.00	13.00	14.00	14.50	15.00	15.50	16.00	16.30	16.50	16.30	16.00	15.50

Source: Trendforce 12/2025

NVMe SSD DC3000ME (Gen 5)
3,84TB, 7,68 TB, 15,36 TB, 30,72 TB

Specifications

Form factor	U.2, 2.5" x 15mm
Interface	PCIe NVMe Gen5 x4 (backward compatible with Gen4)
Capacities[1]	3.84TB, 7.68TB, 15.36TB, 30.72TB
NAND	3D eTLC
Sequential read/write[2]	3.84TB – 14,000MB/s / 5,800MB/s 7.68TB – 14,000MB/s / 10,000MBs 15.36TB – 14,000MB/s / 9,700MB/s 30.72TB - 14,000MB/s / 9,700MB/s
4k random read/write (IOPS)[2]	3.84TB – 2,700,000 / 300,000 7.68TB – 2,800,000 / 500,000 15.36TB – 2,700,000 / 400,000 30.72TB - 2,600,000 / 350,000
Latency quality of service (QoS)[2, 3, 4]	3.84TB-15.36TB 99% - Read/Write: <70 µs / < 10 µs 30.72TB 99% - Read/Write: <175 µs / < 12 µs
Static and dynamic wear levelling	Yes
Power loss protection (power caps)	Yes
Encryption	Yes - TCG Opal 2.0, AES 256-bit encryption
Namespace management support	Yes - 128 namespaces supported
Enterprise diagnostics	Telemetry, media wear, temperature, health, etc.
Endurance (TBW/DWPD)[5]	3.84TB – 7,008TB, 1DWPD (5 years) 7.68TB – 14,016TB, 1DWPD (5 years) 15.36TB – 28,032TB, 1DWPD (5 years) 30.72TB - 56,064TB, 1DWPD (5 Years)

Thank you

VÁŠ PRŮVODCE
SVĚTEM IT

Lukáš Vach | lukas.vach@mcomputers.cz