ANALOG & CONNECTIVITY

MAY 16, 2024
DAVIN LEE
SVP AND GM OF ANALOG & CONNECTIVITY PRODUCT GROUP
RENESAS ELECTRONICS CORPORATION

RENESAS

AT A GLANCE

ANALOG & CONNECTIVITY

Our products / technologies

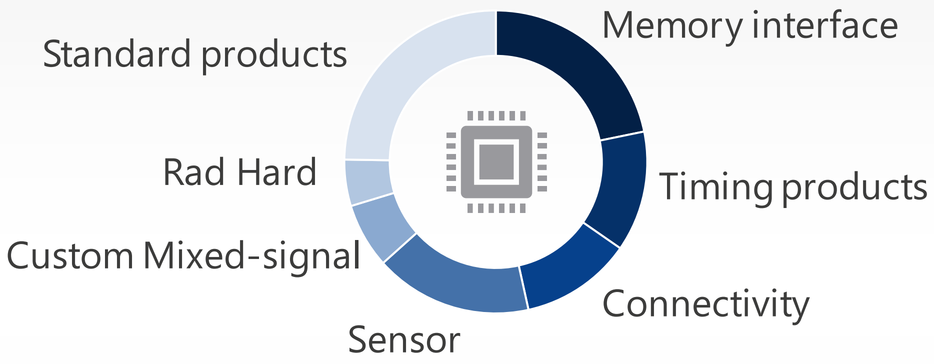
Full system solution of memory interface products for DDR5

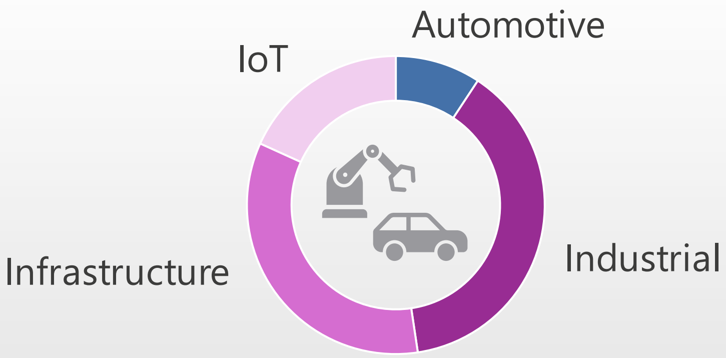
Broadest and deepest silicon timing portfolio

Connectivity (BLE, Wi-Fi, NFC, DECT, Sub-GHz, PLC etc.)

Sensors and sensor signal conditioners

2023 Revenue

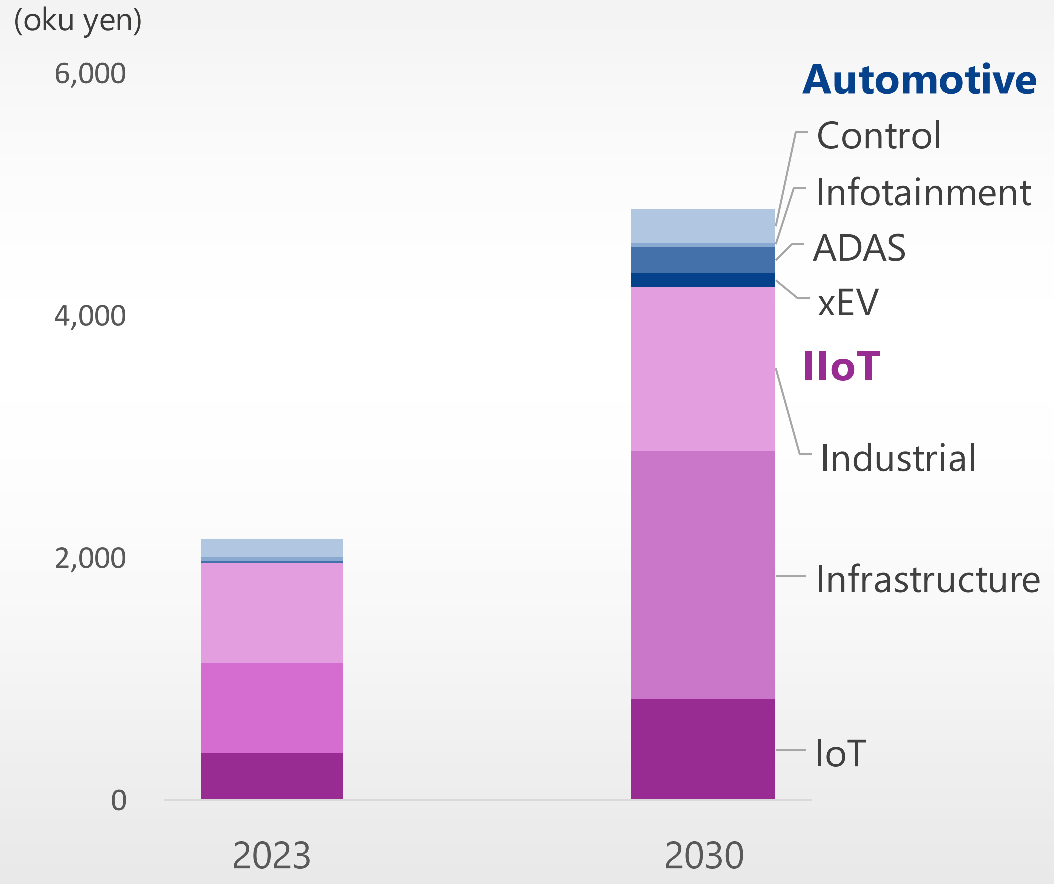




GROWTH DRIVERS

ANALOG & CONNECTIVITY

Revenue



* FX $1 = 100yen, €1 = 120yen

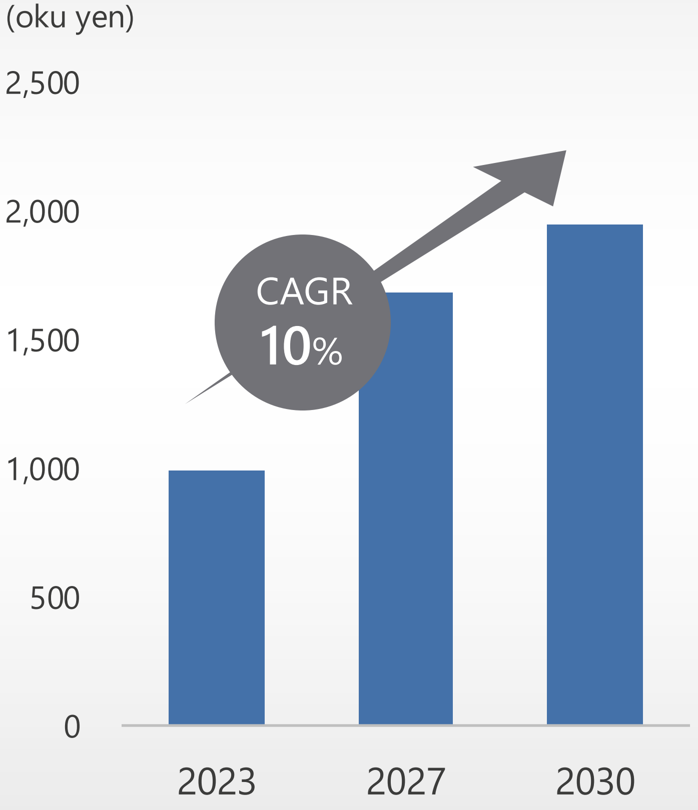
Growth drivers

Automotive	Connectivity (NFC, UWB, BLE), Sensors, GreenPAK
Industrial	Solution Sell in Mass Market: GreenPAK/FPGAs, Standard products, Connectivity & Sensors
Infrastructure	Market leadership & content expansion in DDR5 and MCR solution
IoT	Low power, intelligent Connectivity solutions ideally suited for edge IoT

MCR: Multiplexer Combined Ranks, NFC: Near Filed Communication, UWB: Ultra Wide Band, BLE Bluetooth Low Energy

MEMORY INTERFACE OVERVIEW

Memory Interface Market



Source: Renesas estimates

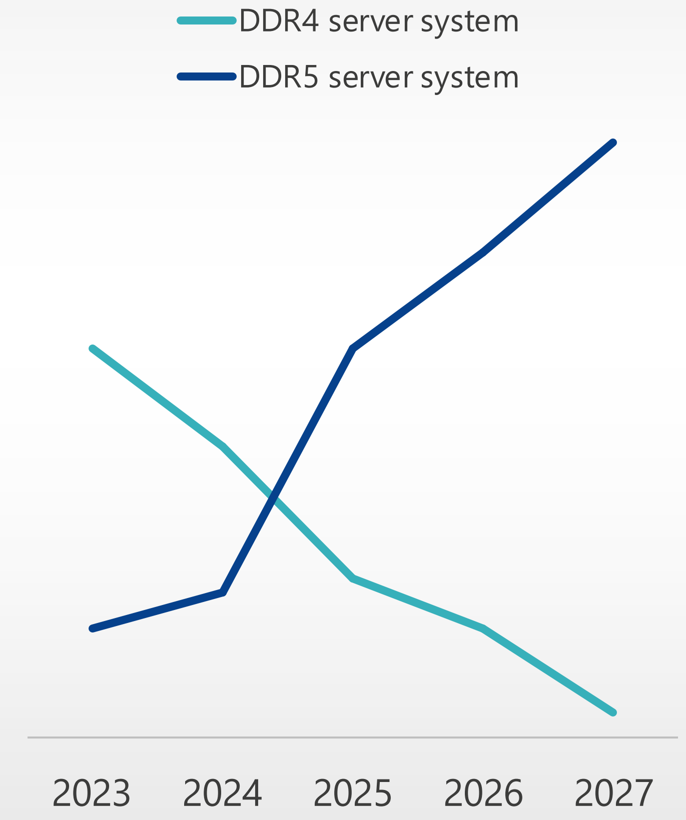
* FX $1 = 100yen, €1 = 120yen

- Penetration of AI-optimized servers
- Launch of AI PCs
- Expansion of Multiplexer Combined Ranks (MCR) DIMM
- Leading share in Data Center memory interface & Client market segment
- Global teams for productivity and support

RENESAS MEMORY LEADING DDR5 TRANSITION

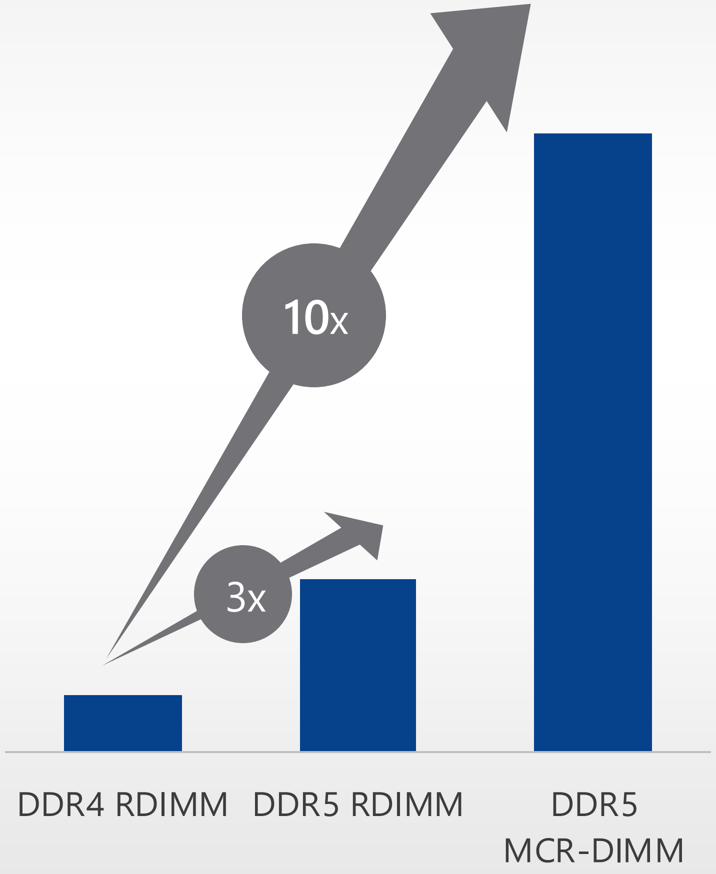
EXANDING CHIPSET CONTENT

DDR5 DIMM RAMP



Source: Renesas estimates

Chipset content ($)



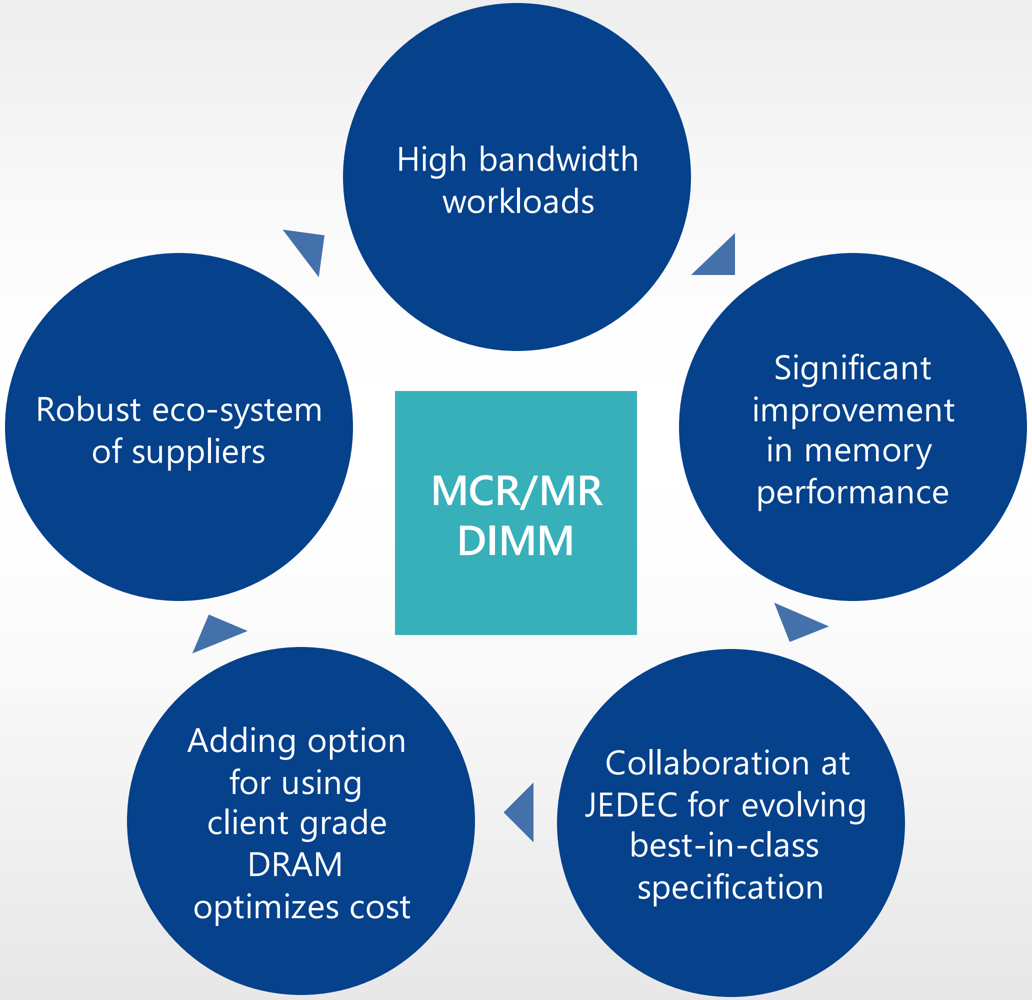
Source: Renesas estimates

Comprehensive DDR5 Chip Set

- PMIC
- Temp Sensor
- SPD Hub
- Registered Clock Driver
- Data Buffer

NEW CLASS OF HIGH BANDWIDTH SOLUTIONS: MCR/MR DIMM

OPTIMIZED SOLUTION FOR SYSTEM MEMORY IMPROVEMENT



MCR/MR DIMM

High bandwidth workloads

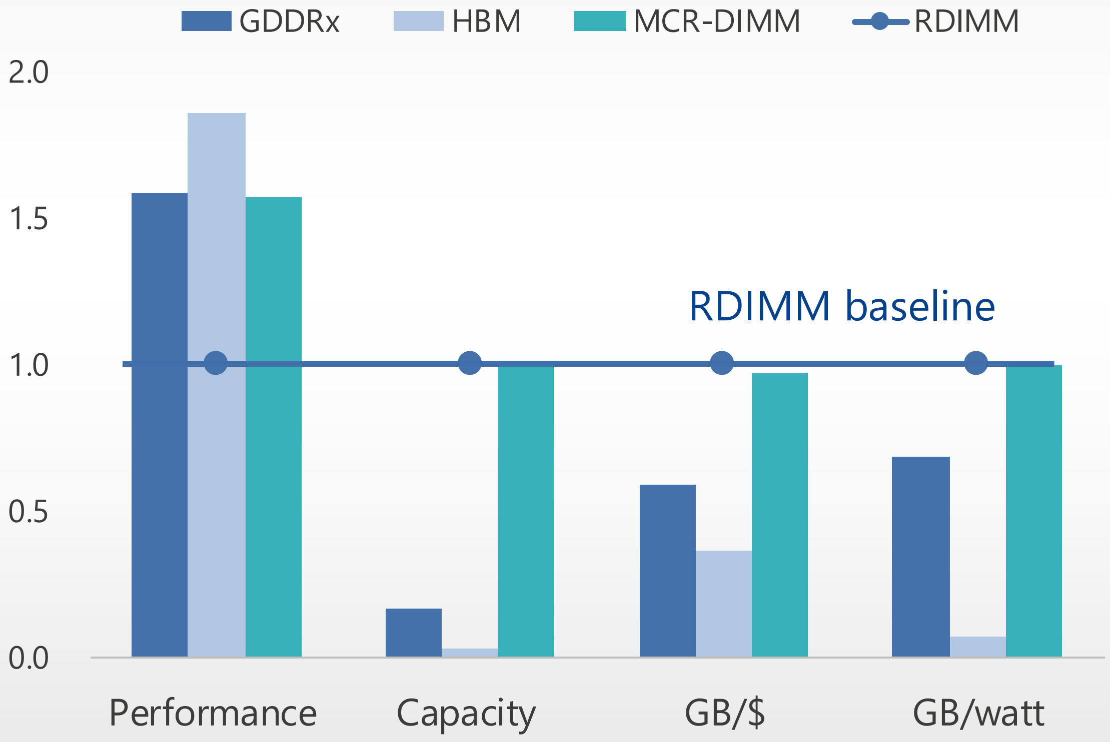
Significant improvement in memory performance

Collaboration at JEDEC for evolving best-in-class specification

Adding option for using client grade DRAM optimizes cost

Robust eco-system of suppliers

Comparison[*1] of High bandwidth technologies
(Relative to RDIMM baseline)



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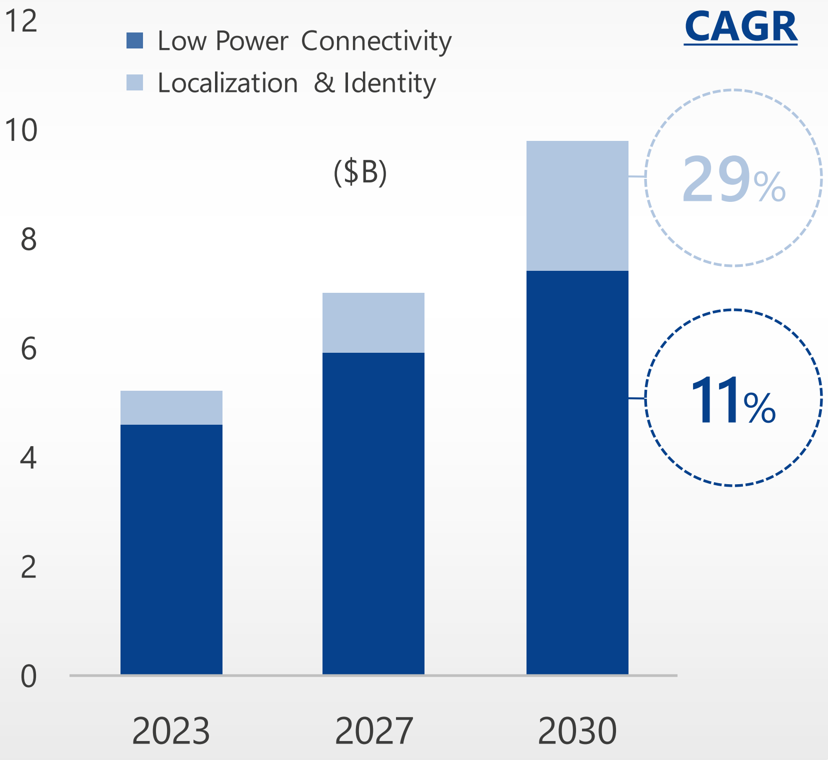
*1: All metrics are estimated per SoC from various sources

CONNECTIVITY OVERVIEW

Connectivity SAM



Source: Renesas estimates

- Adoption of smart devices at the edge
- Connected end-to-end systems
- Increased real-time compute and data movement
- Security and privacy concerns
- Advanced technologies as a combination of our own and acquired technologies

CONNECTIVITY @ THE EDGE - SCALABLE STRATEGY

Challenges

- Low power budgets
- Data integrity
- Real-time responses

Scalable strategy

- Ultra low power architecture
- Localization & Identity connectivity
- Software platform

CONNECTIVITY @ THE EDGE - COMPETITIVE ADVANTAGE

Low Power @ the edge

Leveraging Renesas unique architecture delivering up to 50% less power than the nearest competitor in class

- >2yrs on 2 AA batteries
- 10yrs on CR2032 cell

Performance where it matters

Functional & performance advantages for key customer needs

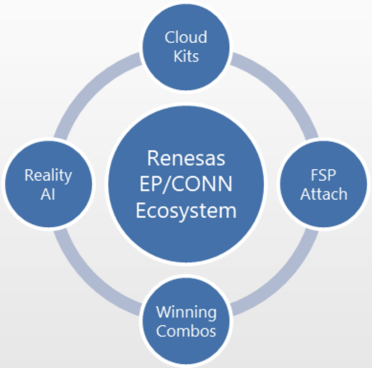
- Enabling secure access with widest margin
- Double the interference robustness of nearest competition in noisy environments

Reduced cost of ownership

Integration of key components to reduce BOM

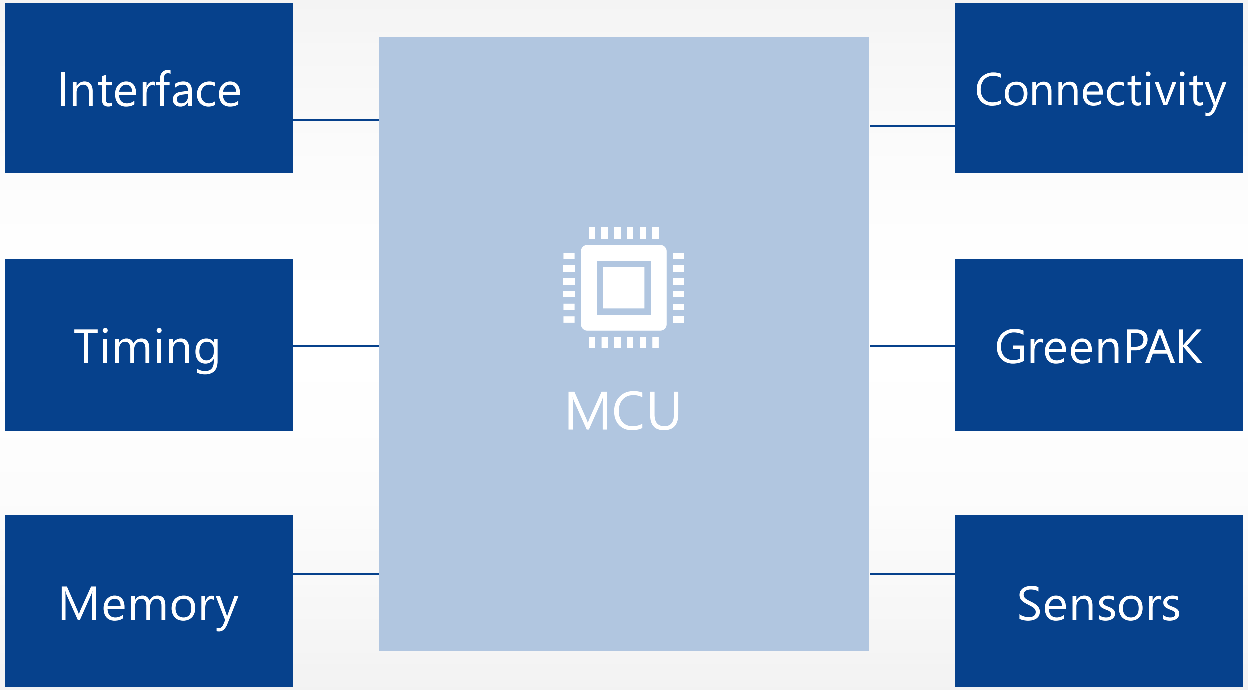
- Reducing customer board size by 30%
- Integration of Power Management & MCU
- Removal of complex matching circuitry

Scalable integration with MCU



Seamless integration into the Renesas EP ecosystem significantly reduces development time

SOLUTION SELL



> 500 [*1]

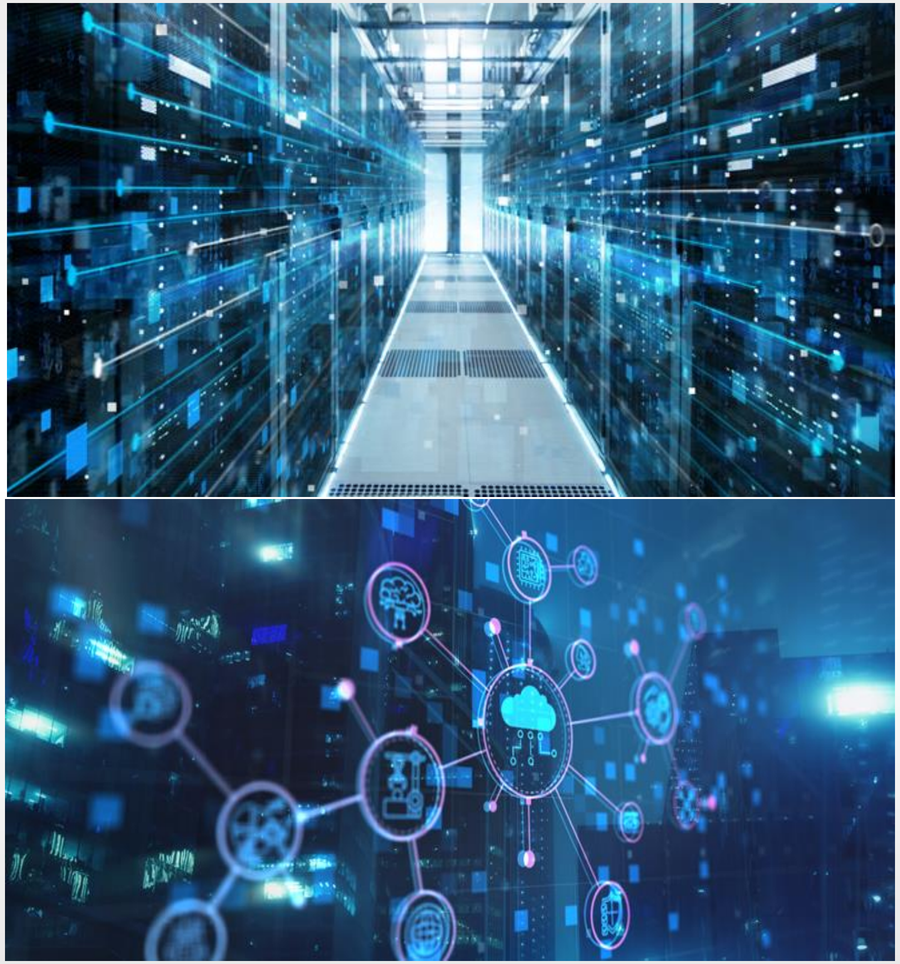
of Winning Combo's

~ 3,000 [*2] oku yen / year

of potential SAM expansion

*1: Numbers based on the launch until the end of 2023, *2: Renesas estimates

SUMMARY



DDR5 / MCR ramp and content increase driving memory interface growth

Connectivity products ideally suited to address market demands as connectivity at the edge increases

Solution sell leveraging MCU market share & broad product portfolio

Ease of use software platform enabling faster market adoption

THANK YOU

(FORWARD-LOOKING STATEMENTS)

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