RZ Family DRAM list

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Purpose and Agreement

- This DRAM list for RZ MPUs would **help RZ customers to choose an appropriate DRAM among many products.** In addition to "Recommendation" that fully verified with real boards, we newly **defined "Option" that briefly verified with simulation to provide wider selection to save cost/TAT for memory selection.**
- Please use this information for your reference and confirm if it works with SI/PI verification with your design under your responsibility. Please understand that Renesas will not guarantee that those DRAMs can work with custom boards.

Definition of verification level

Table 1 Definition of verification level

Verification level	Overview	Deliverables	Notes
Option-1	DRAM operation and characteristics are verified with EVK by Renesas.	PCB reference design data, PCB design guide	Deliverables can be downloaded from each product page on Renesas website.
Option-2	DRAM operation and characteristics are verified with an internal board by Renesas.	None	Not disclose any deliverables due to Renesas internal board.
Option-3	DRAM operation and characteristics are verified with a physical board by 3rd party.	Verification report	Needs to contact 3rd party for details.
Option-4	SI and/or PI is simulated without a physical board by 3rd party.	None	Needs to contact 3rd party for details.

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1. DRAM recommendation list

1.1 RZ/G2 Group

The table describes DRAM information of RZ/G2 group.
You can also refer to RZ/G series website for more information included products and related Evaluation Kit (EVK).

Table 1.1 RZ/G2 Group

Product Group	Memory Type	Density	Bus size	Rank	Maker	Memory Part Number	Validated by	Options
RZ/G2L 15x15mm 21x21mm LFBGA	DDR4	16Gb	16 bits	1 rank	Micron	MT40A1G16KD-062E:E	Renesas Electronics	Option-1
	DDR4	8Gb	16 bits	1 rank	Nanya	NT5AD512M16C4-JRI	Renesas Electronics	Option-1
	DDR4	8Gb	16 bits	1 rank	Winbond	W668GG6TB-06	Winbond	Option-3
	DDR4	16Gb	16 bits	1 rank	Samsung	K4AAG165WA-BCTD	Aurora Systems	Option-4
	DDR4	16Gb	16 bits	1 rank	Alliance	AS4C1G16D4	Aurora Systems	Option-4
	DDR4	8Gb	16 bits	1 rank	ISSI	IS43/46QR16512A	Aurora Systems	Option-4
RZ/G2LC 13x13mm LFBGA	DDR4	8Gb	16 bits	1 rank	Micron	MT40A512M16LY-062EIT:E	Renesas Electronics	Option-1
	DDR3L	4Gb	16 bits	1 rank	Micron	MT41K256M16TW-107 XIT:P	Renesas Electronics	Option-2
RZ/G2UL 13x13mm LFBGA	DDR4	8Gb	16 bits	1 rank	Micron	MT40A512M16LY-062EIT:E	Renesas Electronics	Option-1
	DDR3L	4Gb	16 bits	1 rank	Micron	MT41K256M16TW-107 IT	Renesas Electronics	Option-2
RZ/G2H 29x29mm FCBGA	LPDDR4	16Gb	32 bits	1 rank	Samsung	K4F6E3S4HM-MGCJ	Renesas Electronics	Option-1
RZ/G2M 29x29mm FCBGA	LPDDR4	16Gb	32 bits	1 rank	Samsung	K4F6E3S4HM-MGCJ	Renesas Electronics	Option-1
RZ/G2N 29x29mm FCBGA	LPDDR4	16Gb	32 bits	1 rank	Samsung	K4F6E3S4HM-MGCJ	Renesas Electronics	Option-1
RZ/G2E 29x29mm FCBGA	DDR3L	4Gb	32 bits	1 rank	Winbond	W634GU8NB11I	Renesas Electronics	Option-1

1.2 RZ/Five Group

The table describes DRAM information of RZ/Five group.
You can also refer to RZ/G series website for more information included products and related Evaluation Kit (EVK).

Table 1.2 RZ/Five Group

Product Group	Memory Type	Density	Bus size	Rank	Maker	Memory Part Number	Validated by	Options
RZ/Five 11x11mm 13x13mm LFBGA	DDR4	8Gb	16 bits	1 rank	Micron	MT40A512M16LY-062EIT:E	Renesas Electronics	Option-1
	DDR3L	4Gb	16 bits	1 rank	Micron	MT41K256M16TW-107 IT	Renesas Electronics	Option-1

1.3 RZ/G3 Group

The table describes DRAM information of RZ/G3 group.
You can also refer to RZ/G series website for more information included products and related Evaluation Kit (EVK).

Table 1.3 RZ/G3 Group

Product Group	Memory Type	Density	Bus size	Rank	Maker	Memory Part Number	Validated by	Options
RZ/G3S 13x13mm 14x14mm LFBGA	LPDDR4	8Gb	16 bits	1 rank	Micron	MT53E512M16D1FW-046WT	Renesas Electronics	Option-1
	DDR4	16Gb	16 bits	1 rank	Micron	MT40A2G16TBB-062E:F	Renesas Electronics	Option-1
	LPDDR4	8Gb	16 bits	1 rank	Nanya	NT6AN512M16AV-J1I	Renesas Electronics	Option-1
	LPDDR4	8Gb	16 bits	1 rank	ISSI	IS43/46LQ16512B	Aurora Systems	Option-4
RZ/G3E 15x15mm 21x21mm FCBGA	LPDDR4X	32Gb	32 bits	1 rank	Micron	MT53E1G32D2FW-046 WT:C	Renesas Electronics	Option-1
	LPDDR4	64Gb	32 bits	2 ranks	Micron	MT53E2G32D4DE-046 AIT:C	Renesas Electronics	Option-2
	LPDDR4	32Gb	32 bits	1 rank	Micron	MT53E1G32D2FW	Renesas Electronics	Option-2
	LPDDR4X	32Gb	32 bits	1 rank	Nanya	NT6AP1024F32BV-J1	Aurora Systems	Option-4
	LPDDR4X	32Gb	32 bits	1 rank	Alliance	AS4C1G32MD4V-046BIN	Aurora Systems	Option-4
	LPDDR4X	32Gb	32 bits	1 rank	ISSI	IS43/46LQ32K01B	Aurora Systems	Option-4

1.4 RZ/V2 Group

The table describes DRAM information of RZ/V2 group.
You can also refer to RZ/V series website for more information included products and related Evaluation Kit (EVK).

Table 1.4 RZ/V2 Group

Product Group	Memory Type	Density	Bus size	Rank	Maker	Memory Part Number	Validated by	Options
RZ/V2L 15x15mm 21x21mm LFBGA	DDR4	16Gb	16 bits	1 rank	Micron	MT40A1G16KD-062E:E	Renesas Electronics	Option-1
	DDR4	8Gb	16 bits	1 rank	Micron	MT53D512M16D1DS-046	Renesas Electronics	Option-1
	DDR4	16Gb	16 bits	1 rank	Samsung	K4AAG165WA-BCTD	Aurora Systems	Option-4
	DDR4	16Gb	16 bits	1 rank	Alliance	AS4C1G16D4	Aurora Systems	Option-4
RZ/V2M/MA 15x15mm FCBGA	LPDDR4	64Gb	32 bits	1 rank	Micron	MT53E1024M32D4DT-053 AIT:D	Renesas Electronics	Option-1
	LPDDR4	64Gb	32 bits	1 rank	Micron	MT53E1G32D2NP-046 WT:B	Renesas Electronics	Option-1
RZ/V2H 19x19mm FCBGA	LPDDR4X	64Gb	32 bits	2 ranks	Micron	MT53E2G32D4DE-046 AIT:C	Renesas Electronics	Option-1
	LPDDR4X	64Gb	32 bits	2 ranks	Micron	MT53E2G32D4DE-046 WT:C	Aurora Systems	Option-4
	LPDDR4X	32Gb	32 bits	1 rank	Micron	MT53E1G32D2FW-046	Aurora Systems	Option-4
	LPDDR4X	32Gb	32 bits	1 rank	Nanya	NT6AP1024F32BV-J1	Aurora Systems	Option-4
	LPDDR4X	32Gb	32 bits	1 rank	Alliance	AS4C1G32MD4V-046BIN	Aurora Systems	Option-4
	LPDDR4X	32Gb	32 bits	1 rank	ISSI	IS43/46Q3201S1A	Aurora Systems(note1)	Option-4
RZ/V2N 15x15mm FCBGA	LPDDR4X	64Gb	32 bits	2 ranks	Micron	MT53E2G32D4DE-046 AIT:C	Renesas Electronics	Option-1
	LPDDR4X	64Gb	32 bits	2 ranks	Micron	MT53E2G32D4DE-046 WT:C	Renesas Electronics	Option-1
	LPDDR4X	32Gb	32 bits	1 rank	ISSI	IS43/46Q3201S1A	Aurora Systems(note1)	Option-4

Note1) Need to adjust your layout with SI simulation. A few verification items failed on RZ/V2H or RZ/V2N EVK.

1.5 RZ/T2 Group

The table describes DRAM information of RZ/T2 group.
You can also refer to RZ/T series website for more information included products and related Evaluation Kit (EVK).

Table 1.5 RZ/T2 Group

Product Group	Memory Type	Density	Bus size	Rank	Maker	Memory Part Number	Validated by	Options
RZ/T2H 23x23mm FCBGA	LPDDR4	64Gb	32 bits	2 ranks	Micron	MT53E2G32D4DE-046 WT:C	Renesas Electronics	Option-1

1.6 RZ/N2 Group

The table describes DRAM information of RZ/N2 group.
You can also refer to RZ/N series website for more information included products and related Evaluation Kit (EVK).

Table 1.6 RZ/N2 Group

Product Group	Memory Type	Density	Bus size	Rank	Maker	Memory Part Number	Validated by	Options
RZ/N2H 21x21mm FCBGA	LPDDR4	64Gb	32 bits	2 ranks	Micron	MT53E2G32D4DE-046 WT:C	Renesas Electronics	Option-1

1.7 RZ/A Group

The table describes DRAM information of RZ/A group.
You can also refer to RZ/A series website for more information included products and related Evaluation Kit (EVK).

Table 1.7 RZ/A Group

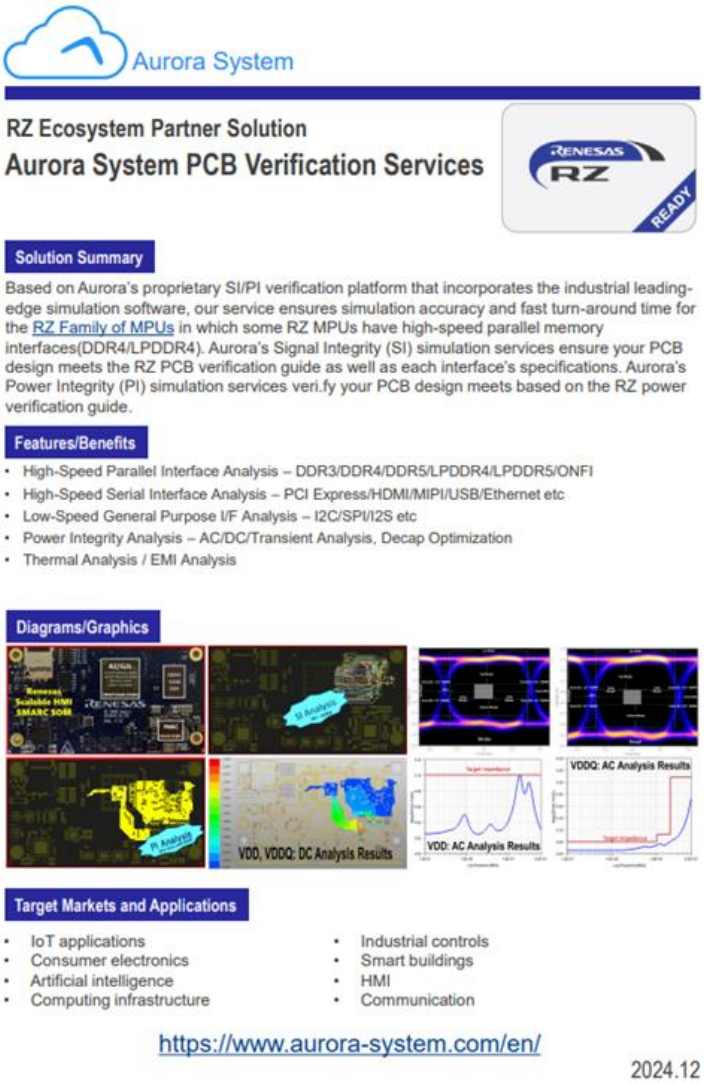
Product Group	Memory Type	Density	Bus size	Rank	Maker	Memory Part Number	Validated by	Options
RZ/A3UL **13x13mm LFBGA**	DDR4	8Gb	16 bits	1 ranks	Micron	MT40A512M16LY-062EIT:E	Renesas Electronics	Option-1
	DDR3L	4Gb	16 bits	1 ranks	Micron	MT41K256M16TW-107 IT	Renesas Electronics	Option-2

2. SI/PI simulation partner

Renesas recommends you to rely on PCB verification service vendor through SI/PI simulation if you have no experience in SI/PI or when you face any trouble in SI/PI simulation etc.

❖ [Aurora System PCB Verification Services | Renesas]

- Is a partner of Renesas Ready Partner Network
- Executed SI/PI simulation of the combination of RZ and DDR memory devices defined as “Option” at recommendation level
- Can provide the simulation report
- **This experience helps to smoothly offer SI/PI simulation service for RZ family at shorter TAT**



REVISION HISTORY	RZ Family DRAM list

Rev.	Date	Description	
		Page	Summary
1.00	Sep 1, 2025	—	First edition issued
1.01	Sep 17, 2025	P3	Typo RZ/G2L DDR4[1GByte] -> DDR4[2GByte]
1.02	Feb 10, 2026	P1	Redefined options
		P3	Added Winbond product to DRAM list of RZ/G2L
		P3-P6	Renewed format of DRAM list adding “rank” information
1.03	Feb 24, 2026	P1	Redefined options
		P3	Deleted several DRAMs from the list because they are not completed verifications.
1.04	Mar 24, 2026		Added ISSI product to DRAM list of RZ/G2L, RZ/G3S, RZ/G3E, RZ/V2H and RZ/V2N
			Added RZ/A3UL

General Precautions in the Handling of Microprocessing Unit and Microcontroller Unit Products

The following usage notes are applicable to all Microprocessing unit and Microcontroller unit products from Renesas. For detailed usage notes on the products covered by this document, refer to the relevant sections of the document as well as any technical updates that have been issued for the products.

1. Precaution against Electrostatic Discharge (ESD)
   A strong electrical field, when exposed to a CMOS device, can cause destruction of the gate oxide and ultimately degrade the device operation. Steps must be taken to stop the generation of static electricity as much as possible, and quickly dissipate it when it occurs. Environmental control must be adequate. When it is dry, a humidifier should be used. This is recommended to avoid using insulators that can easily build up static electricity. Semiconductor devices must be stored and transported in an anti-static container, static shielding bag or conductive material. All test and measurement tools including work benches and floors must be grounded. The operator must also be grounded using a wrist strap. Semiconductor devices must not be touched with bare hands. Similar precautions must be taken for printed circuit boards with mounted semiconductor devices.
2. Processing at power-on
   The state of the product is undefined at the time when power is supplied. The states of internal circuits in the LSI are indeterminate and the states of register settings and pins are undefined at the time when power is supplied. In a finished product where the reset signal is applied to the external reset pin, the states of pins are not guaranteed from the time when power is supplied until the reset process is completed. In a similar way, the states of pins in a product that is reset by an on-chip power-on reset function are not guaranteed from the time when power is supplied until the power reaches the level at which resetting is specified.
3. Input of signal during power-off state
   Do not input signals or an I/O pull-up power supply while the device is powered off. The current injection that results from input of such a signal or I/O pull-up power supply may cause malfunction and the abnormal current that passes in the device at this time may cause degradation of internal elements. Follow the guideline for input signal during power-off state as described in your product documentation.
4. Handling of unused pins
   Handle unused pins in accordance with the directions given under handling of unused pins in the manual. The input pins of CMOS products are generally in the high-impedance state. In operation with an unused pin in the open-circuit state, extra electromagnetic noise is induced in the vicinity of the LSI, an associated shoot-through current flows internally, and malfunctions occur due to the false recognition of the pin state as an input signal become possible.
5. Clock signals
   After applying a reset, only release the reset line after the operating clock signal becomes stable. When switching the clock signal during program execution, wait until the target clock signal is stabilized. When the clock signal is generated with an external resonator or from an external oscillator during a reset, ensure that the reset line is only released after full stabilization of the clock signal. Additionally, when switching to a clock signal produced with an external resonator or by an external oscillator while program execution is in progress, wait until the target clock signal is stable.
6. Voltage application waveform at input pin
   Waveform distortion due to input noise or a reflected wave may cause malfunction. If the input of the CMOS device stays in the area between V_{IL} (Max.) and V_{IH} (Min.) due to noise, for example, the device may malfunction. Take care to prevent chattering noise from entering the device when the input level is fixed, and also in the transition period when the input level passes through the area between V_{IL} (Max.) and V_{IH} (Min.).
7. Prohibition of access to reserved addresses
   Access to reserved addresses is prohibited. The reserved addresses are provided for possible future expansion of functions. Do not access these addresses as the correct operation of the LSI is not guaranteed.
8. Differences between products
   Before changing from one product to another, for example to a product with a different part number, confirm that the change will not lead to problems. The characteristics of a microprocessing unit or microcontroller unit products in the same group but having a different part number might differ in terms of internal memory capacity, layout pattern, and other factors, which can affect the ranges of electrical characteristics, such as characteristic values, operating margins, immunity to noise, and amount of radiated noise. When changing to a product with a different part number, implement a system-evaluation test for the given product.

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