

Entry-Level 64-Bit MPUs Ideal for HMI and Edge AI Processing

RENESAS RZ/G2L, RZ/G2LC

MPUs with Arm® Cortex®-A55 Simplify HMI Development and Enhance Edge AI Processing

Digital transformation of industrial automation, HMI, industrial control, and building control accelerate the move towards adoption of 64-bit MPUs and rich operating systems (Linux), including entry-level products. Renesas' new entry-level 64-bit MPUs – RZ/G2L and RZ/G2LC – improve CPU processing performance with better cost advantage, and provide high reliability to HMI designs.

Features

- 2× Cortex®-A55 (1.2GHz), Cortex®-M33 (200MHz)
- 16-bit DDR3L/DDR4-1600 (in line ECC)
- Camera IF; MIPI CSI-2 (4 lanes) or Parallel
- Display IF; MIPI DSI (4 lanes) or Parallel
- 3D graphics function (Arm® Mali™-G31)
- H.264 codec
- 2× Gigabit Ethernet
- 2× CAN (CAN-FD)
- 2× USB2.0 (Host, Host/Peripheral)
- 2× SDHI (UHS-I, UHS-I/MMC)
- Package;
 - 21mm × 21mm, 0.8mm pitch 551pins BGA
 - 15mm × 15mm, 0.5mm pitch 456pins BGA

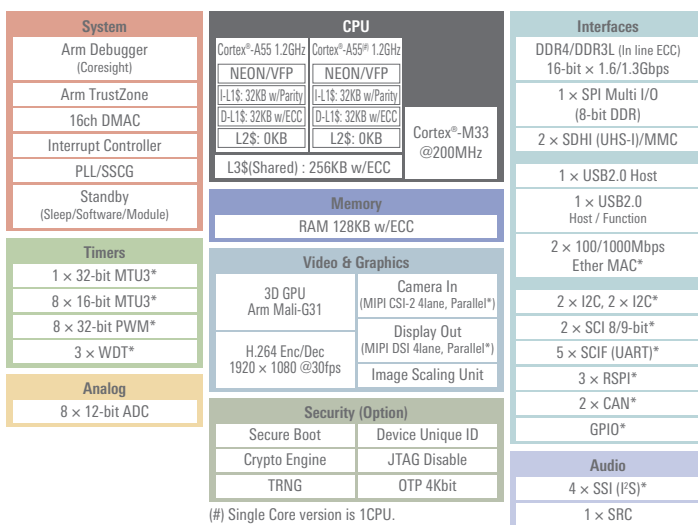
Applications

- Home Appliance
- Industrial HMI
- Intercom/ Doorbell
- Point of Sales
- Smart Thermostat
- Smart Camera

Benefits

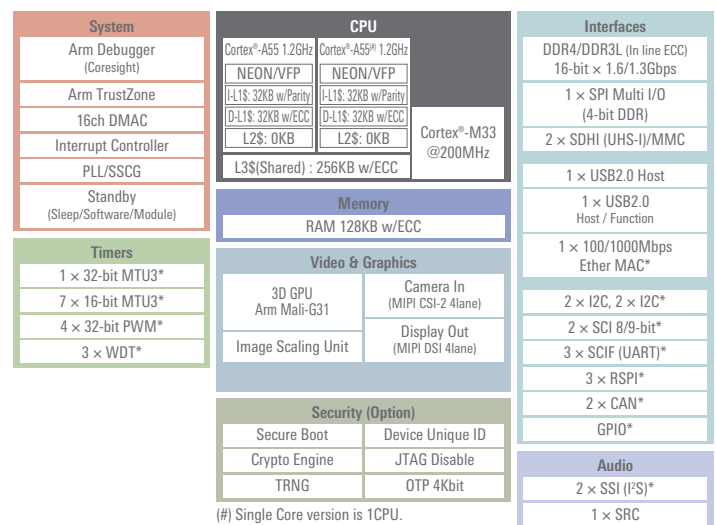
- 20% increase in general processing performance, and 3 times faster edge AI processing performance with Arm® Cortex®-A55
- Single-chip solution suitable for compact and portable applications
- High reliability delivered through ECC (Error Correction Code) feature.
- Keep systems safe from security threats with over 10 years of long-term maintenance support on CIP Linux.
- Optimized PMIC (RAA215300) reduces power supply design complexity

RZ/G2L Block Diagram



*Shared

RZ/G2LC Block Diagram

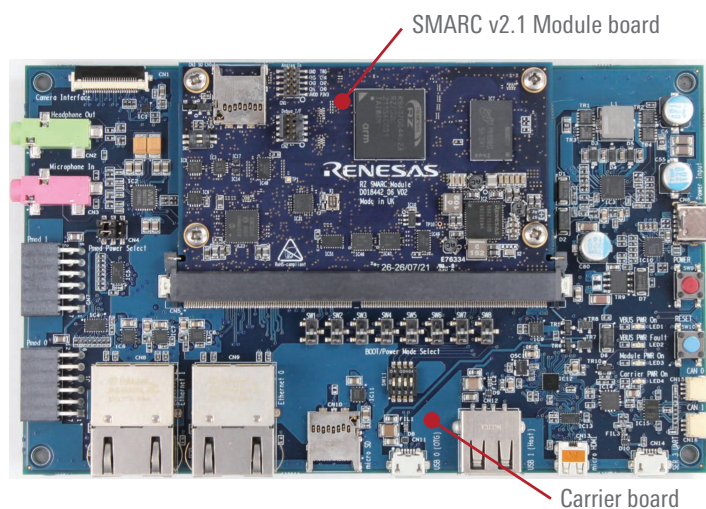


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Evaluation Board Kit (EVK)

The EVK for RZ/G2L and RZ/G2LC has a SMARC v2.1 Module board + Carrier board configuration. You can easily evaluate each device by exchanging System on Modules (SOMs).



- Module board (Dimension: 82 mm x 50mm)
 - Processor: RZ/G2L / RZ/G2LC
 - Main Memory:
 - 2GB DDR4 (2GB x1) for RZ/G2L
 - 1GB DDR4 (1GB x1) for RZ/G2LC
 - QSPI NOR FLASH: 64MB
 - eMMC Memory: 64GB
 - External Storage: micro SD x1 (Exclusive with eMMC)
 - A/D Converter Interface for RZ/G2L
 - JTAG connector
 - PMIC (RAA215300)
- Carrier board (Dimension: 160mm x 100mm)
 - Gigabit Ethernet x2
 - USB2.0 x 2ch (OTG x1ch, Host x1ch)
 - MIPI CSI-2 Camera connector (can connect to Google Coral Camera)
 - Micro HDMI (output) connector (Convert MIPI DSI output to HDMI)
 - External Storage: micro SD x1
 - Audio Line in x1
 - Audio Line out x1
 - PMOD x2
 - USB-Type C for Power Input

Ordering References

Product Group	RZ/G2L				RZ/G2LC	
	R9A07G044L24GBG	R9A07G044L14GBG	R9A07G044L23GBG	R9A07G044L13GBG	R9A07G044C22GBG	R9A07G044C12GBG
Arm Cortex-A55	2	1	2	1	2	1
Arm Cortex-M33	1	1	1	1	1	1
3D Graphics (Arm Mali-G31)	✓	✓	✓	✓	✓	✓
Video Codec (H.264)	✓	✓	✓	✓	—	—
Display Interface	1x MIPI DSI or 1x Digital Parallel output	1x MIPI DSI or 1x Digital Parallel output	1x MIPI DSI or 1x Digital Parallel output	1x MIPI DSI or 1x Digital Parallel output	1x MIPI DSI	1x MIPI DSI
Camera Interface	1x MIPI CSI-2 or 1x Digital Parallel input	1x MIPI CSI-2 or 1x Digital Parallel input	1x MIPI CSI-2 or 1x Digital Parallel input	1x MIPI CSI-2 or 1x Digital Parallel input	1x MIPI CSI-2	1x MIPI CSI-2
Gigabit Ethernet	2ch	2ch	2ch	2ch	1ch	1ch
12-bit A/D Converter	8ch	8ch	8ch	8ch	—	—
Package	LFBGA	LFBGA	LFBGA	LFBGA	LFBGA	LFBGA
Pin Count	551pin	551pin	456pin	456pin	361pin	361pin
Package Information	21mm x 21mm 0.8mm pitch	21mm x 21mm 0.8mm pitch	15mm x 15mm 0.5mm pitch	15mm x 15mm 0.5mm pitch	13mm x 13mm 0.5mm pitch	13mm x 13mm 0.5mm pitch

For More Information on RZ/G2L and RZ/G2LC, please visit:

RZ/G2L: <https://www.renesas.com/rzg2l>

RZ/G2LC: <https://www.renesas.com/rzg2lc>

Learn more about the [RZ/G2L Evaluation Kit Board](#) and [RZ/G2LC Evaluation Kit Board](#).

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