

RZ/G2 First Generation 64-bit MPUs with VERIFIED LINUX PACKAGE

High-Performance, High-Reliability MPUs with Advanced Graphics for Next-Generation HMI in Industrial and Building Automation

The RZ/G2 first generation group of microprocessors (MPU) combine a powerful 64-bit multi-core architecture with advanced graphics capabilities and high-bandwidth memory interfaces to enable a new generation of systems with enhanced human-machine interfaces (HMI) for factory automation, process control, building power management, and video surveillance. Renesas supports application development with an industrial-grade Linux software package, maintained for 10+ years to provide reliability, functional safety, security, and feature-richness to mission-critical systems.

Highlights

- **High Performance:**
64-bit Arm®v8-A cores, plus powerful graphics engine and 4k UHD video engine, to offer the highest performance per dollar
- **Super Long Term Support (SLTS) for Linux:**
Civil Infrastructure Platform (CIP) offers 10+ years support for Linux kernel
- **RZ/G Linux Solution:**
Reduce development cost and time with Renesas verified software for RZ/G MPUs

Delivers Highest Performance and Advanced Graphics Capabilities

The RZ/G2 first generation MPUs offer higher performance per dollar in the 64-bit MPU market that can reduce system cost while improving system performance.

- 64-bit architecture for faster, more efficient processing with Arm® Cortex®-A53 and Cortex®-A57 CPU cores
- Multicore combinations to scale from low-end to high-end applications, delivering up to 35.6k DMIPS in a single package
- Latest high-speed protocols for external memories including DDR3L and LPDDR4 up to 3200 MT/s
- Fast communication with integrated USB 3.0, SATA, PCI-e, Gigabit Ethernet, QSPI, and eMMC interfaces
- Powerful video and graphics with 600 MHz PowerVR 3D GFX, 4k UHD H.265 and H.264 codecs, HDMI, LVDS, and MIPI-CSI2 camera inputs

Capabilities at a Glance

RZ/G2 Group	RZ/G2H	RZ/G2M	RZ/G2N	RZ/G2E
	High Performance	Mid-Range		Economical
	Wide Range Pin Compatible			
CPU (64-bit Arm®v8-A)	4× Cortex®-A57@1.5 GHz 4× Cortex®-A53@1.2 GHz L1,L2 Parity/ECC	2× Cortex®-A57@1.5 GHz 4× Cortex®-A53@1.2 GHz L1,L2 Parity/ECC	2× Cortex®-A57@1.5 GHz L1L2 Parity/ECC	2× Cortex®-A53@1.2 GHz L1L2 Parity/ECC
Performance	35,600 DMIPS	23,300 DMIPS	12,300 DMIPS	5,500 DMIPS
DRAM I/F	LPDDR4-3200 x 32-bit x 2ch	LPDDR4-3200 x 32-bit x 2ch	LPDDR4-3200 x 32-bit	DDR3L-1866 x 32-bit
Video Codec	4k resolution H.265 Decoder H.264/AVC	4k resolution H.265 Decoder H.264/AVC	4k resolution H.265 Decoder H.264/AVC	FHD resolution H.265 Decoder H.264/AVC
3D Graphics	PowerVR GX6650@600 MHz	PowerVR GX6250@600 MHz	PowerVR GE7800@600 MHz	PowerVR GE8300@600 MHz
Other Peripheral Functions	USB 3.0, SATA, PCI-e, GbE, MIPI-CSI HDMI	USB 3.0, PCI-e, GbE, MIPI-CSI HDMI	USB 3.0, SATA, PCI-e, GbE, MIPI-CSI HDMI	USB 3.0, GbE, PCIe, MIPI-CSI LVDS

Code and Data Security

Enable a secure trusted platform through many hardware features including:

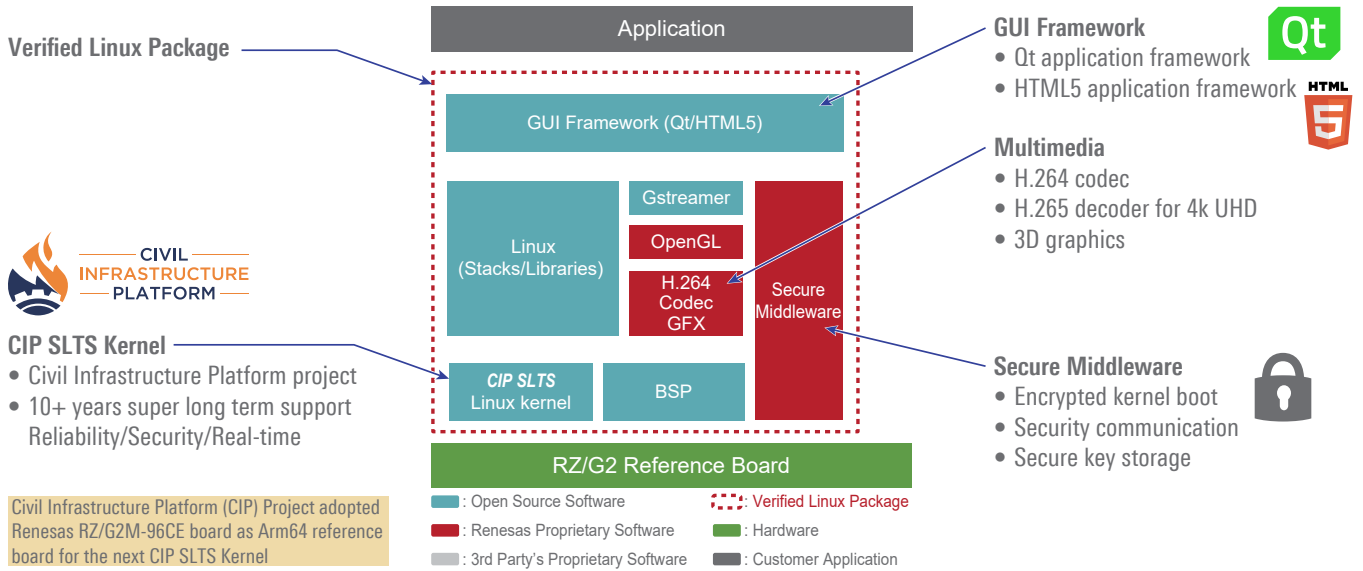
- Arm® TrustZone partitioning
- Cryptographic acceleration
- Secure key generation and storage
- Secure boot
- Establishment of unique root of trust

Super Long Term Software Support

Renesas RZ/G2 group MPUs are the only embedded MPUs that meet the long-term support demands for industrial and infrastructure equipment manufacturers through the 10+ year support offered by the Super Long Term Support (SLTS) kernel maintained by the Civil Infrastructure Platform (CIP). The CIP SLTS Linux kernel supports countermeasures against vulnerability to security attacks with a long-term maintenance period of 10 years or more. This reduces Linux maintenance costs and simplifies adoption of reliable industrial-grade Linux.

RZ/G Linux Package Reduces Cost and Simplifies Design

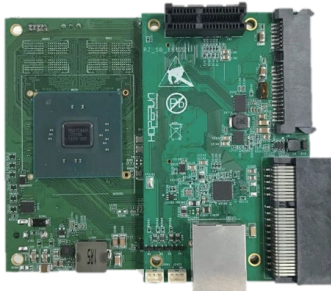
Start developing applications quickly with reduced costs. Minimize resources for maintenance. The RZ/G Linux Package includes the following no-charge development package:



Flexible Development Kits

RZ/G2 development kits support the industry standard 96Boards specification to enable evaluation and speed development with a wide variety of mezzanine boards. Renesas provides circuit schematics, component BOMs, and board layout data to make it easy to spin your own custom hardware.

RZ/G2H,RZ/G2M,RZ/G2N 96 Development Kit



- Main Memory: 4 GB DDR4
- QSPI NOR FLASH 64 MByte
- I²C EEPROM 512 Byte
- External Storage: micro SD × 1
- Connectivity: USB 2.0 × 2ch, USB 3.0 × 1ch, GbE × 1
- HDMI out / LVDS out or MIPI DSI out
- Wi-Fi + BT

RZ/G2E 96 Development Kit



- Main Memory: 2 GB DDR3L
- QSPI NOR FLASH 64 MByte
- I²C EEPROM 512 Byte
- External Storage: micro SD × 1
- Connectivity: USB 2.0 × 2ch, USB 3.0 × 1ch, GbE × 1
- HDMI out / LVDS out or MIPI DSI out
- Wi-Fi + BT

Learn more about the RZ/G2 MPUs at:
[renesas.com/products/microcontrollers-microprocessors/rz-mpus/rzg-series](https://www.renesas.com/products/microcontrollers-microprocessors/rz-mpus/rzg-series)

Download the free Civil Infrastructure Platform white paper at:
www.cip-project.org

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