64-BIT MICRO-PROCESSORS

General-purpose MPUs for AI processing

Renesas expanded the 64-bit RZ/G2L group by three entry-level MPU (micro-processor unit) models. Each model offers two CAN FD interfaces.


The introduced RZ/G2L modules are dedicated for use in HMI and vision processing applications (Source: Renesas)

The introduced RZ/G2L, RZ/G2LC, and RZ/G2UL MPU models are built around the Arm Cortex-A55 CPU (central processing unit) core, which delivers ca. 20 % improved processing performance compared with the previous Cortex-A53 core and provides ca. six times faster processing for AI applications, says the manufacturer.

The CAN FD interfaces of the RZ/G2L and RZ/G2LC comply with the ISO 11898-1 (CD 2014). Up to 128 (64 x 2-channel) receive message buffer are shared among the two channels. 16 transmit message buffers per channel are implemented.
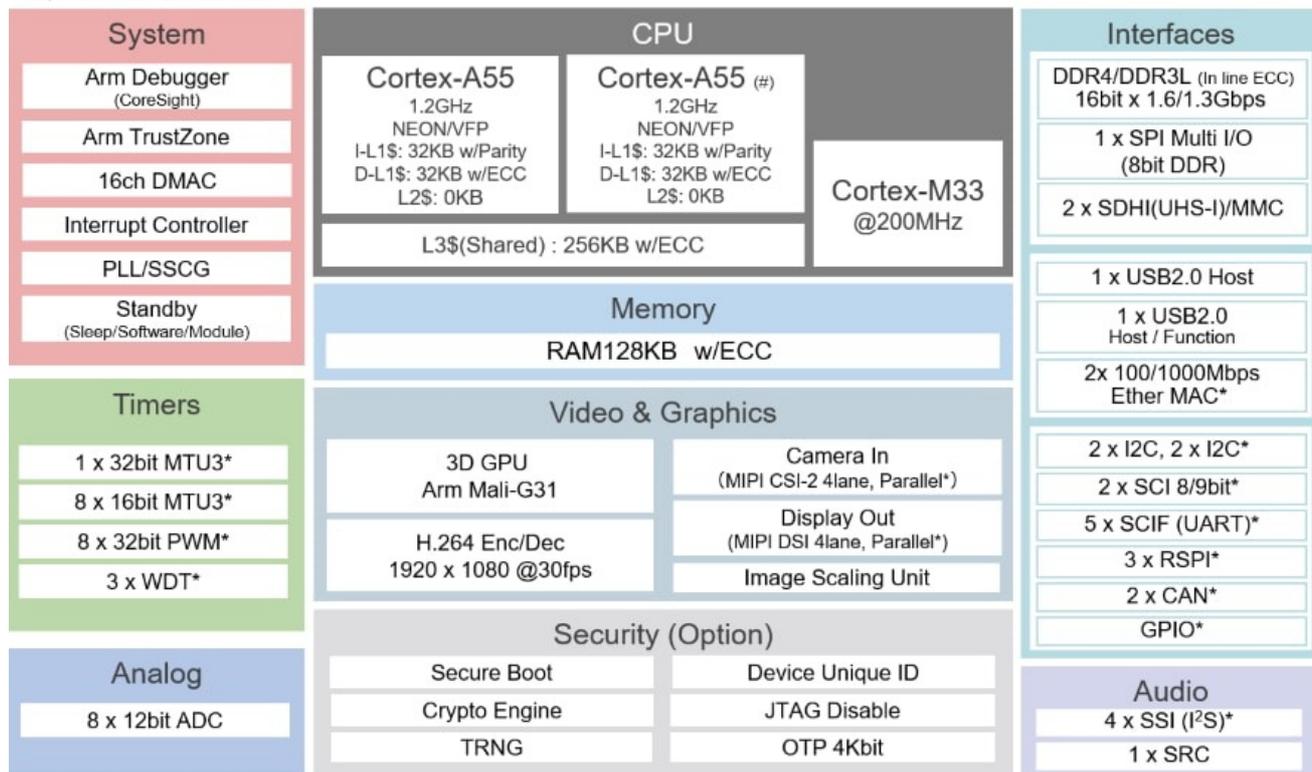
Block diagram of the RZ/G2L (Source: Renesas)

The MPUs integrate camera inputs, a 3D graphics engine, and a video codec. These features provide support for human-machine interface (HMI) applications, such as multimedia processing, GUI (graphical user interface) rendering, and AI (artificial intelligence)

image processing. The chips also feature the Cortex-M33 core, which enables to perform real-time processing for tasks such as sensor data collection without the need for external micro-controllers. Further, the chips include 1-Gbit/s Ethernet channels, USB 2.0 interfaces, SD ports, and offer support for DDR4 and DDR3L external memory interfaces.

The semiconductors feature error checking and correction (ECC) protection for both on-chip memory and external DDR memory. In addition, a Linux package with support and security maintenance for more than 10 years, is available. The manufacturer plans to enhance the functions and performance of MPUs with the Renesas' AI accelerator, the DRP-AI. The units are available in the 13-mm square, 15-mm square, and 21-mm square BGA packages. Sample shipments are already possible. The mass production is scheduled to start in August 2021.

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