RH850/D1L and RH850/D1M

Solution for Hybrid Clusters

Highly scalable MCU family supports cluster and head-up display applications over various car segments with high performance graphics at low cost.

Features

The D1x series offer a single-chip solution to control graphics instrument clusters. With its two sub-series, D1L and D1M, the D1x family offers highest scalability to cover classical instrument clusters as well as clusters featuring 2.5D TFT displays up to 1280 x 480 pixel resolution.

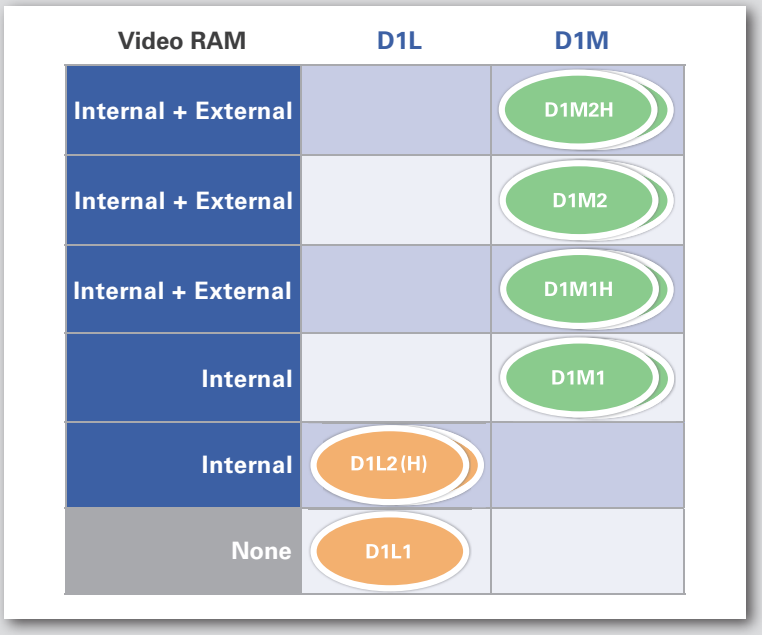
All family members offer

- Up to 6 x stepper motor control and sound generation (incl. PCM)
- Various internal memory sizes up to 5 MB Flash and 512 kB RAM
- Fast external serial NOR-Flash interface
- Car interfaces like CAN-FD and LIN

RH850/D1M offers additionally

- Up to 3 MB internal Video RAM
- 2.5D graphics subsystem (GPU)
- Specific graphics accelerators like JPEG and RLE decompression
- External high-speed DRAM interfaces
- Up to two independant Video in and out channels
- Ethernet-AVB and MOST interfaces

D1x Line-up



Benefits

Internal Memory

D1x was built on the new 40 nm MONOS technology, thus two basic advantages could be implemented: The small transistor gate size allows big internal memories as well for internal FlashROM as for internal SRAM.

Integrated Interfaces

The D1M sub-series supports various Video Out display interfaces like RSDS/TCON and LVDS to reduce the need for external converters.

Video Dithering

The video output unit supports 8-bit to 6-bit video data dithering. This hardware low cost dithering allows smooth 8-bit colour fading even on 6-bit low cost colour displays.

Safety and Security

Considering increased OEM requirements on functional safety and security, the D1x follows the ISO26262 standard and features a comprehensive safety architecture including intelligent monitoring of safety-critical display contents. Various security mechanisms compatible to SHE allow protection against device cloning or manipulation.

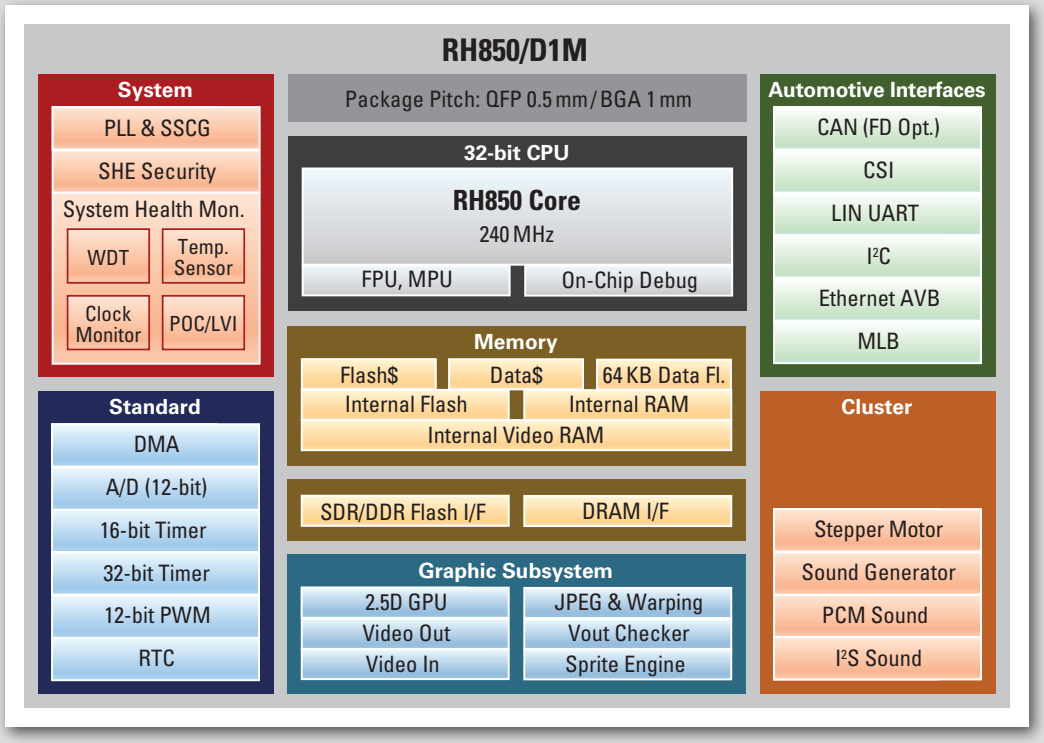
On Chip Voltage Regulator

Low current consumption allows integrated core voltage regulators. Therefore no further external core voltage regulator has to be added.

Reduced PCB Layers

Both package types: QFP and BGA use extra large pitch sizes 0.5 mm pitch at QFP and 1 mm pitch at BGA packages allow to use lower cost PCBs.

Block Diagram



Renesas Electronics Europe
www.renesas.eu

Document No. R01PF0072ED0100