

Main Product Specifications of the R-Car D3

Item	R-Car D3 Specifications
Product No	R-Car D3 (R8A77995)
Power supply voltage	3.3/1.8 V (IO), 2.5 V (Ether), 1.5 V (DDR3) /1.35 V (DDR3L), 1.03 V (core)
CPU core	Arm®Cortex®-A53
Cache memory	L1 Instruction cache : 32 KB L1 Operand cache : 32 KB L2 cache : 12 8KB
External memory	DDR3/DDR3L-SDRAM • Approved standards : DDR3-1866/DDR3L-1866 • Data bus width : 16 bit x 1 ch
Graphics	3D Graphics Processing Unit IMG PowerVR® Series 8XE GE8300
	2D Graphics Processing Unit
Video	Display Out x 2 ch (LVDS x 2 or LVDS + Digital RGB)
	Video Input x 1 ch (Digital RGB)
	Up and down scaling, color conversion, rotate, dithering, sharpness
	Distortion compensation module (IMR-LSX4)
Video output check	Display Output Compare Unit (DISCOM)
	Video-Output-Checker (VOC)
Audio	Sampling rate converter x 2 ch
	Serial sound interface x 2 ch
Storage interfaces	USB 2.0 host/function interface x 1 port (wPHY)
	Multimedia card interface x 1 ch
	Raw NAND Flash memory interface x 1 ch
In car network and automotive peripherals	Media local bus (MLB) Interface x 1ch (3-pin interface)
	Controller area network (CAN-FD support) Interface x 2 ch
	Ethernet AVB 1.0-compatible MAC built in Interface: RGMII Ethernet AVB (802.1 BA) • IEEE802.1BA • IEEE802.1AS • IEEE802.1Qav • IEEE1722
Security	Crypto engine (AES, DES, Hash, RSA)
	SystemRAM
Other peripherals	SYS-DMAC x 24 ch, Realtime-DMAC x 8ch Audio-DMAC x 16 ch, Audio (peripheral) -DMAC x 4ch
	32-bit timer x 26 ch

	PWM timer x 4 ch
	I2C bus interface x 4 ch
	Serial communication interface (SCIF) x 11 ch
	SPI Multi I/O Bus Controller (RPC) x 2ch (HyperFlash™ x 1 ch support)
	Clock-synchronized serial interface (MSIOF) x 4 ch (SPI/IIS)
Low power mode	Module standby mode
	DDR-SDRAM power supply backup mode
Package	401-pin FCBGA 0.8 mm pitch (19 mm x 19 mm)
Development environment	ICE for Arm CPU available from tool vendors
Evaluation board	A user system development reference platform with the following features is also available to enable the users to carry out efficient system development. (1) Incorporates car information system-oriented peripheral circuits, providing users with an actual device verification environment. (2) Can be used as a software development tool for application software, etc. (3) Allows easy implementation of custom user functions.
Software Platform	Support OS: Linux, QNX® Neutrino® RTOS, Integrity® etc.
Functional safety	Supports the ISO 26262 (ASIL-B) Provide a functional safety support program

(Remarks) Arm and Cortex are registered trademarks of ARM Limited (or its subsidiaries) in the U.S. and/or elsewhere. PowerVR is a trademark of Imagination Technologies Limited. HyperFlash is a trademark of Cypress Semiconductor Corporation. QNX, neutrino and Blackberry are trademarks from BlackBerry Limited, and are used with permission from QNX Software System Limited. Green Hills Software and INTEGRITY are trademarks or registered trademarks of Green Hills Software, Inc. in the U.S. and/or internationally. All names of other products or services mentioned in this press release are trademarks or registered trademarks of their respective owners.