

November 10, 2011

Product Specifications of the R-Mobile A1 Series

Item	Specifications		
Product	R-Mobile A1		R-Mobile A1S
Part number	R8A77408DBA	R8A77400DBG	R8A77402DBG
Supply voltage	3.3 V (IO), 1.5 V (DDR3), 1.15 V (core)		
CPU core/cache (maximum operating frequency)	<ul style="list-style-type: none"> ARM®Cortex™-A9 (800 MHz) L1 cache: I-cache 32KB, D-cache: 32 KB L2 cache: Unified cache 256 KB 		
	<ul style="list-style-type: none"> SH4A (600 MHz) L1 cache: I-cache 32 KB, D-cache: 32 KB 		
NEON media processing engine	<ul style="list-style-type: none"> 1320 DMIPS (Effective), 4200 MFLOPS 		
External memory	<ul style="list-style-type: none"> Up to 1 GB of DDR3 SDRAM (DDR800) can be connected to a dedicated DDR bus Maximum operation frequency: 400 MHz Data bus width: 32 bits 		
Expansion bus	<ul style="list-style-type: none"> Asynchronous bus Maximum operation frequency: 100 MHz Data bus width: 8, 16, and 32 bits 		
Main internal peripheral functions	<ul style="list-style-type: none"> PowerVR SGX540 (3DG) 	-	
	<ul style="list-style-type: none"> Renesas graphics processor (2DG) 		
	<ul style="list-style-type: none"> 24-bit digital RGB, BT656 Output 		

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	<ul style="list-style-type: none"> • NTSC/PAL output 	<ul style="list-style-type: none"> • NTSC/PAL output • D2 output 	<ul style="list-style-type: none"> • NTSC/PAL output • D2 output
	<ul style="list-style-type: none"> • HDMI controller (with built-in PHY) 	-	-
	<ul style="list-style-type: none"> • Camera input interface: 2 channels 		
	<ul style="list-style-type: none"> • VCP1 video processor 1920 × 1080 pixels at 30 fps Encode: MPEG2, H.264/AVC, MPEG4, H.263 Decode: MPEG2, H.264/AVC, MPEG4, H.263, VC-1, AVS 		
	<ul style="list-style-type: none"> • VPU5F video processor 960 × 540 pixels at 30 fps Encode: H.264/AVC, MPEG4 Decode: H.264/AVC, MPEG4. VC-1 		
	<ul style="list-style-type: none"> • Video image processing functions: color conversion, image enlargement/reduction, filter processing, enlargement edge enhancement function, gamma correction function. 		
	<ul style="list-style-type: none"> • JPEG still image processing functions 		
	<ul style="list-style-type: none"> • Contrast correction function, color conversion function 		
	<ul style="list-style-type: none"> • Sound processing unit (SPU2): 1 channel 		
	<ul style="list-style-type: none"> • SD host interface: 3 channels 		

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	<ul style="list-style-type: none"> • MMC 4.4 multimedia card interface: 1 channel
	<ul style="list-style-type: none"> • USB 2.0 host: 2 channels / USB 2.0 function interface: 1 channel
	<ul style="list-style-type: none"> • Gigabit Ethernet MAC (10, 100, and 1000 Mbps): 1 channel
	<ul style="list-style-type: none"> • ATAPI interface: 1 channel
	<ul style="list-style-type: none"> • TS interface: 2 channels
	<ul style="list-style-type: none"> • SIM card interface: 1 channel
	<ul style="list-style-type: none"> • Serial communications interface (SCIFA): 8 channels
	<ul style="list-style-type: none"> • Serial communications interface (SCIFB): 1 channel
	<ul style="list-style-type: none"> • SPI interface: 1 channel
	<ul style="list-style-type: none"> • I²C bus interface: 2 channels
	<ul style="list-style-type: none"> • Dedicated DMA controller: 30 channels
	<ul style="list-style-type: none"> • 32-bit timers: 6 channels
	<ul style="list-style-type: none"> • Interrupt controller (INTC)
	<ul style="list-style-type: none"> • Clock generator with built-in PLL circuit
	<ul style="list-style-type: none"> • On-chip debugging functions
Low-power modes	<ul style="list-style-type: none"> • Module standby

Item	Specifications		
	<ul style="list-style-type: none"> • Sleep mode 		
	<ul style="list-style-type: none"> • Core standby mode 		
Packages	505-pin BGA 17 × 17 mm 0.65 mm pitch	480-pin BGA 23 × 23 mm 0.8 mm pitch	480-pin BGA 23 × 23 mm 0.8 mm pitch
Operating temperature(Ta)	-20~70°C	-40~85°C	-40~85°C
Development environment	<ul style="list-style-type: none"> • ICE products that support the ARM processor are available from various vendors 		
Middleware	Renesas provides software solutions for total systems including an extensive range of middleware, including video middleware (H.264, MPEG2, MPEG4, and WMV (Windows Media Video)) audio middleware (MP3, AAC, WMA (Windows Media Audio), and aacPlus) and terrestrial digital TV middleware.		

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