

# System-on-Chip Graphic Products

## SC1810 Series – ARM® Core Based Processors



### State-of-the-art Functions and Performance for In-Vehicle Graphics Display Applications

The SC1810 Series is optimized for in-vehicle graphics display applications such as digital clusters, central HMI and surround-view-systems. In addition to its high resolution graphics capability with improved 3D image processing performance which is five times more than that of the company's previous products, the SoC is also capable of handling 6 channels Full HD video inputs and 3 channels of Full HD display outputs.

The SoC realizes 'Integrated HMI (Human Machine Interface) system' which manages various information from inside and

outside the car and controls multiple displays.

Furthermore, the SC1810 is equipped with a proprietary Vision Processor Unit (VPU), which is compliant with the computer vision API OpenVX, developed by the standardization organization Khronos Group. The SC1810 VPU includes OpenVX compliant hardware accelerator, as well as a programmable data parallel accelerator, enabling advanced image recognition and other advanced functions at high speed and low power consumption.

### Key Features

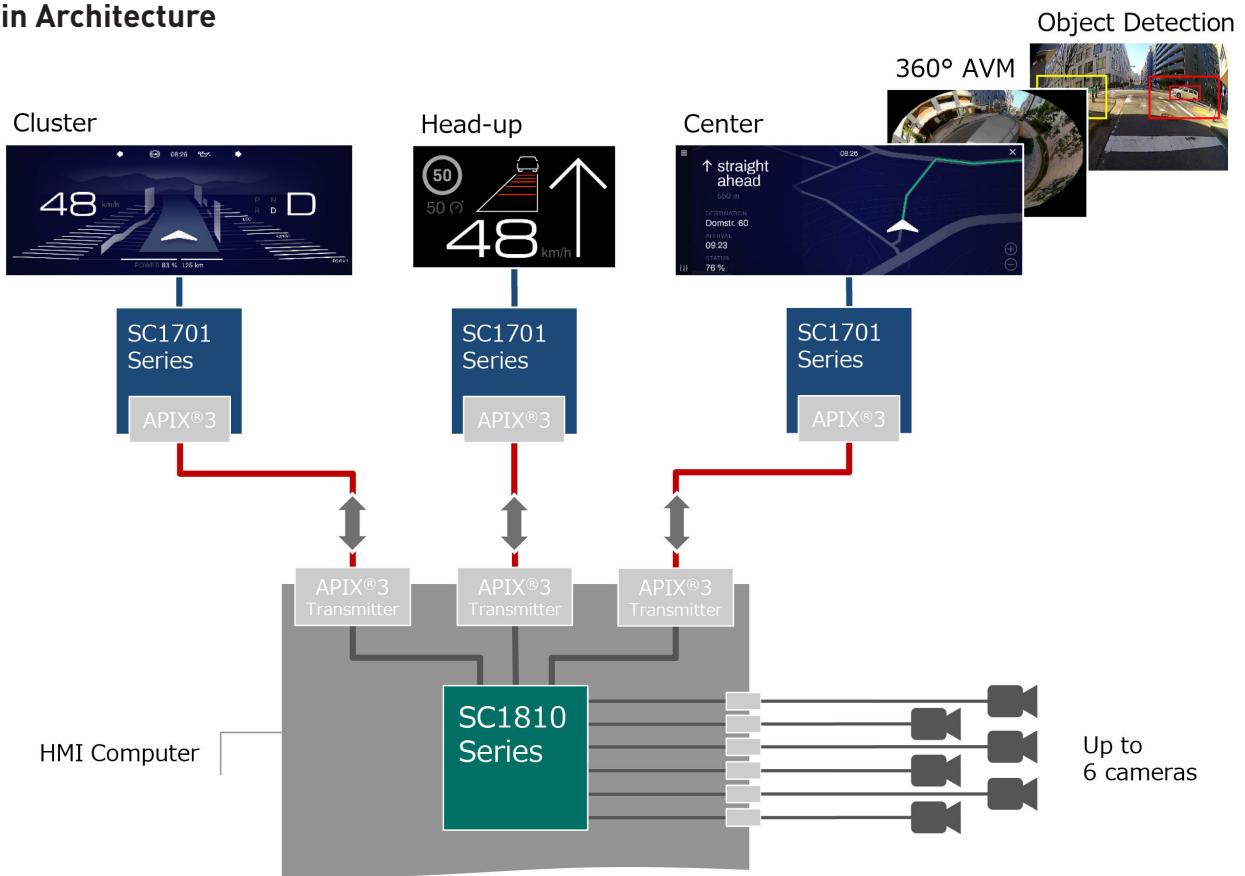
- Quad ARM® Cortex™ A9 MPCore™
- ARM® Neon™ SIMD Engine
- 3D Engine (OpenGL® ES 3.1) POWERVR 8XE
- Socionext SEERIS Capture/Graphics/Display Engines
- Socionext Vision Processor
- DDR3-1866, DDR3L-1600, 16/32/64 Bus Width
- 3 Independent Display Controllers
- 6 Independent Video Capture Units
- Multi-Format Decoder Full-HD: 6x30fps or 2x60fps
- Wide Range of Peripherals for External Connectivity
- Multi-Format Encoder Full-HD: 2x60fps
- Motion JPEG Decoder Full-HD: 6x30fps
- Standard I/O: UART, SPI, USB, Ethernet AVB etc.
- Automotive I/F: MediaLB® (3-Pin), CAN
- FCBGA-1024: 0.8 pitch

socionext™ SC1810 Series		Memory	
		SRAM 128k	16ch DMA DDR3 1866; DDR3L 1600 16/32/64-bit
Connectivity	Main Processor	System	
ADC 12bit	ARM® Neon ARM® Cortex-A9	ARM® Neon ARM® Cortex-A9	ARM® Neon ARM® Cortex-A9
HS-SPI SPI Master	I-Cache 32kB D-Cache 32kB	I-Cache 32kB D-Cache 32kB	I-Cache 32kB D-Cache 32kB
USB 2.0	L2-Cache 1024kB		
SDIO/MMC	Vision and 3D Graphics Processor		Video
UART/USART	Socionext Vision Processor Unit	PowerVR 8XE 3D Shading Engine OpenGL ES 3.1	H264 De-/Encoder Motion JPEG Decoder
I2C   I2S	2D and Video Processing		
PWM GPIO	Capture Engine	SEERIS® 2D Engine	Display Engine
MediaLB	MIP1-CST2, DRGB888, ITU-R BT.656	Pixel Engine	1920x1080, 24Bit up to 8 layers, Dithering, DualView, TCON, SigUnit
CAN	SMPTe, YCbCr, Histogram	Display Engine	DRGB888, YUV422 FPD-Link (LVDS)
Ethernet AVB	Capture   Capture   Capture	Fill, Copy, Blend, Rop2/3, Scale, Rotate, FIR	
		DRGB888, YUV422	

# System-on-Chip SC1810 Series Lineup

Features	SC1810AR3-134	SC1810AR3-113	SC1810AR3-103
Package - Pin	FC BGA - 1024		
Size, Pitch	27x27mm, 0.8mm		
CPU	ARM® Cortex™ A9 MPCore Dual core @ 1GHz	ARM® Cortex™ A9 MPCore Quad core @ 1GHz	
3D GPU	PowerVR 8XE		
2D GPU	Socionext SEERIS® MDP2		
Display Controller	2x 1920x1080 @ 60Hz Up to 8 layers	3x 1920x1080 @ 60Hz Up to 8 layers	
Video Capture	4x 1920x1080 @ 30fps RGB x1ch Ethernet AVB MIPI CSI2 x1ch	6x 1920x1080 @ 30fps RGB x1ch Ethernet AVB MIPI CSI2 x1ch	
HW Video Decoder	6x 1920x180 @ 30fps H.264, MJPEG HW Decoder		
HW Video Encoder	-		4x 1920x1080 @ 30fps H.264 HW Encoder
Vision Processor	Socionext Vision Processor DPA-only (OpenVX)	Socionext Vision Processor DPA + HWA (OpenVX)	
Memory	DDR3-1866/DDR3L-1600 x16, x32, x64		
Standard I/O	I²C, I²S, UART, SPI		
Network	CAN, MOST, Ethernet AVB		
Qualification	AEC-Q100		

## Domain Architecture



The Products and product specifications described in this document are subject to change without notice for modification and/or improvement. At the final stage of your design, purchasing, or use of the products, therefore, ask for the most up-to-date Product Standards in advance to make sure that the latest specifications satisfy your requirements. All company names, brand names and trademarks herein are property of their respective owners.

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