

Smart Display Controllers

SC1721x / SC1722x / SC1723x Series



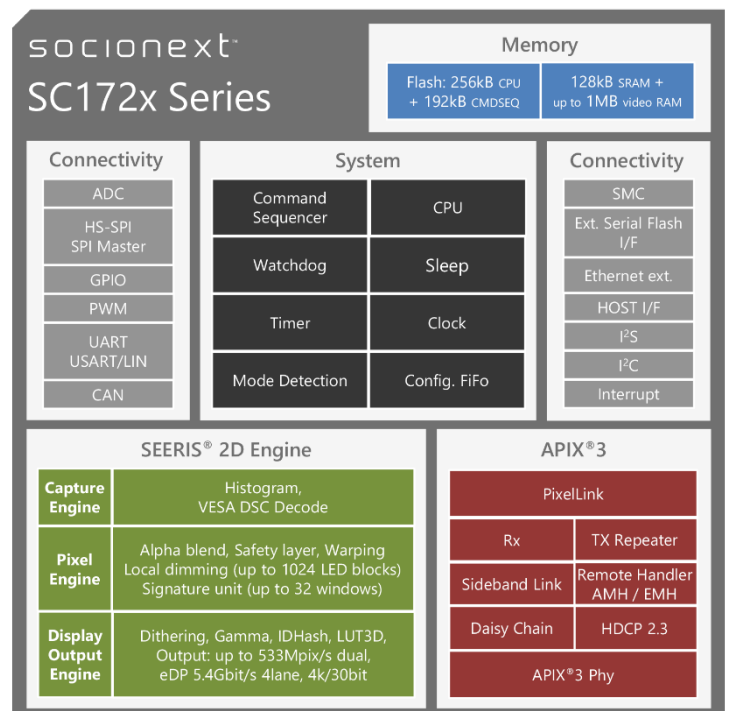
Automotive Smart Display Controllers for Multi-Display Cockpit Applications

Built on Socionext's 2D SEERIS® Pixel Engine, these smart display controllers enable highly optimized and cost-effective solutions for complex multi-display cockpit applications. All graphics processing is performed in a line-buffer based scheme, combined with a versatile and flexible sprite engine. An optional APIX® video link is integrated with up to 12 Gbps link speed.

The fail-safe operation and error-free and high-class display of safety-critical content is ensured through a variety of special safety features like signature units, local dimming and warping, thus supporting functional safety with ISO 26262. Camera connectivity is enabled over Ethernet with touch controller support through back channel.

Key features:

- 4k Resolution (3840 x 2160 @ 60Hz / 30bpp)
- Socionext SEERIS® 2D Graphics Engine
- Signature Unit and Safety layer
- Local Dimming (up to 1024 LED blocks)
- Warping-on-the-Fly
- Video Capture Interface (Dual LVDS)
- Optional APIX®3 receiver up to 12 Gbps with HDCP 2.3
- Ethernet extension support through APIX®3
- VESA DSC decompression up to 3:1 ratio
- Display Output Interfaces (oLDI, eDP)
- Touch Controller connectivity and Audio Generator
- Wide range of peripherals for external connectivity
- Spread Spectrum Modulation to reduce EMI
- AEC-Q100 qualification
- Support for Automotive Safety and Integrity (ASIL B)
- 3 package variants for design and BOM flexibility



Display Controller Lineup

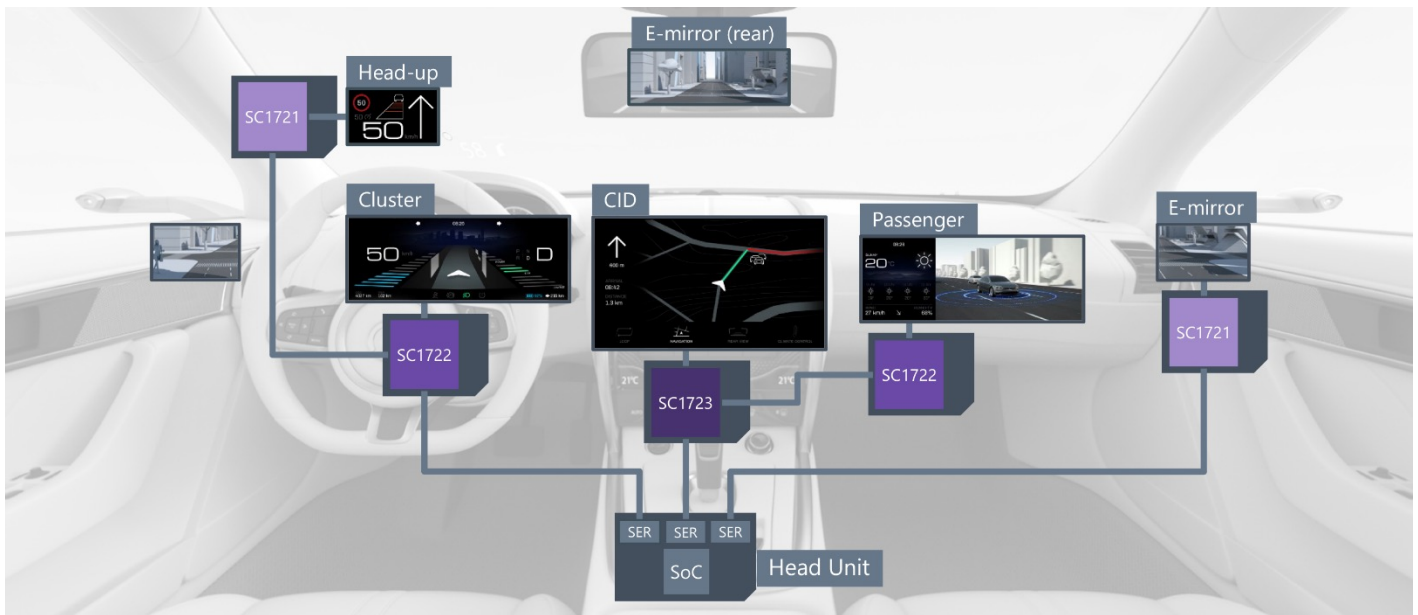
	SC1721 AH5-1xx	SC1721 AH5-200	SC1722 AK3-1xx	SC1722 AK3-200	SC1723 AK3-1xx
Max Resolution	1920x1080		3840x1080		3840x2160 (*1)
Daisy Chain	Yes (3Gbit/s)	No	Yes (6Gbit/s)	No	Yes (6Gbit/s)
DSC	No		Yes	No	Yes
Local Dimming	512 LED block				1024 LED block
HDCP	HDCP2.3	No	HDCP2.3	No	HDCP2.3
Warping	Yes		No		
CPU Subsystem	Cortex-M23				
Video Output	Dual oLDI				eDP 5.4Gbps 4lane
Video Capture	APIX3® 2x 3Gbit/s	Dual oLDI	APIX3® 2x 6Gbit/s	Dual oLDI	APIX3® 2x 6Gbit/s
Max Pixel Clock	135Mpix/s (*2)		266Mpix/s		533Mpix/s
Others	3D-LUT				
ASIL/QM	Developed under ISO26262 ASIL-B				
Signature Unit	24 (*3)		24		32
IDHash	4				8
FLASH Memory	256kB CPU Flash / 192kB CMDSEQ Flash				
SRAM	64kB CPU local SRAM / 64kB common SRAM (with ECC)				
	1MB Video RAM				256k Video RAM
PKG	EP-LQFP216		TEBGA437		TEBGA427
Size	24x24mm		23x23mm		23x23mm

(*1) When local dimming is enabled, the maximum resolution and APIX TX can be supported by I4-H only if customer ensures the appropriate thermal design

(*2) Max pixel clock can be increased depending on the use case (i.e., warping) or the appropriate thermal design measures

(*3) The available CRC number depends on the warping use case

Multi-Display Cockpit Architecture



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