

# Graphics Display Controllers

MB88F334/-6 - SC1711AH5 - SC1701BK3 - SC1701BH5



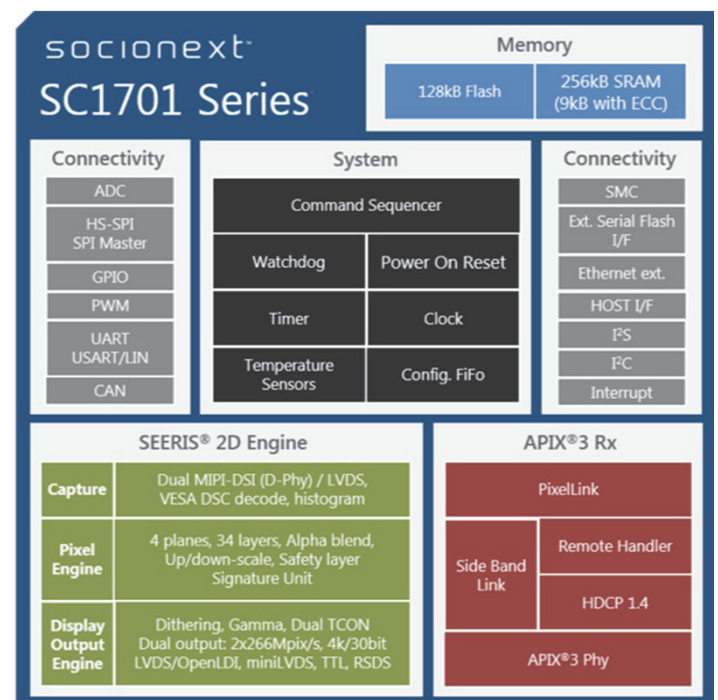
## Next Generation In-Vehicle Remote Display Controllers supporting Domain Architecture

Enables highly optimized and cost effective solutions for a broad range of in-vehicle remote display uses. Reduces the overall BOM and allows the realization of competitive and cost optimized systems. Performs all graphics processing, including safety and integrity related functions by its

signature unit. Utilizing two display controllers allows flexible architectures with more than one display in a single chain. The future-proof design supports through its video link up to 12 Gbps uncompressed or equivalent to 28 Gbps video data by utilizing VESA DSC compression method.

### Key features:

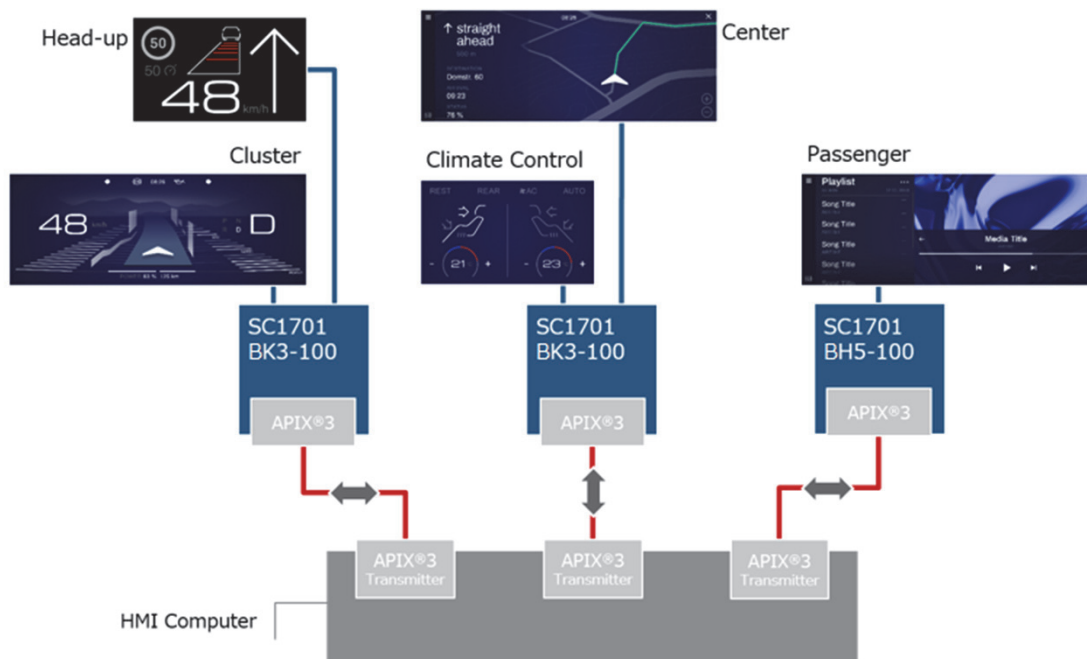
- 4K Resolution (3840 x 2160 @60Hz / 30bpp)
- Socionext SEERIS® 2D Graphics Engine
- Dual Display Controller and dual TCON integrated
- Signature Unit and Safety layer
- Optional APIX®3 receiver up to 12 Gbps with HDCP 1.4
- Ethernet extension support through APIX®3
- VESA DSC decompression up to 3:1 ratio
- Display Output Interfaces (OpenLDI, miniLVDS, RSDS, TTL)
- 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)
- 2 package variants for design and BOM flexibility



## Graphics Display Controller Line-up

Features	MB88F334-/6	SC1711AH5 <b>NEW!</b>	SC1701BK3 <b>NEW!</b>	SC1701BH5 <b>NEW!</b>
Package – Pin	LQFP – 208	EP – LQFP – 176	HS – BGA – 319	EP – LQFP – 216
Size, Pitch	28x28mm, 0.5mm	20x20mm, 0.4mm	23x23mm, 1.0mm	24x24mm, 0.4mm
2DCore	Socionext SEERIS® -MVL	Socionext SEERIS® -MVL	Socionext SEERIS® -MVL	Socionext SEERIS® -MVL
Video Channels	2	1	2	1
Video Output Resolution	1920x1024 @60fps (18bit) 1920x768 @60fps (24bit)	1280x480 @60fps (24bit)	1x3840x2160 @60fps (30bit) 2x2560x1600 @60fps (30bit)	1x1920x1080 @60fps (30bit)
Video Output	TCON-RSDS;TTL dual LVDS(OpenLDI)	TCON-RSDS;TTL dual LVDS(OpenLDI)	Dual TCON-RSDS 2x 6 pair miniLVDS, TTL 2x dual LVDS(OpenLDI)	TCON-RSDS 6 pair miniLVDS, TTL dual LVDS(OpenLDI)
Video Formats Decompression	RGBA, Indexed, Grey Scale @10 bits per component	RGBA, Indexed, Grey Scale @10 bits per component	RGBA or YUV4:4:4 / 4:2:2 VESADSCv1.2 (2:1/3:1)	RGBA or YUV4:4:4 / 4:2:2 VESADSCv1.2 (2:1/3:1)
Pixel Speed	144MHz		2x266MPix/s or 1x533Mpix/s	266MPix/s
Signature Units	4	4	2x8	8
Image Processing	CLUT, Matrix, Dither, Gamma, Sprites, α blending	CLUT, Matrix, Dither, Gamma, Sprites, α blending	CLUT, Matrix, Dither, Gamma, Sprites, α blending, scaling	CLUT, Matrix, Dither, Gamma, Sprites, α blending, scaling
Audio	I <sup>2</sup> S over APIX®2, Sound Generator		I <sup>2</sup> S over APIX®3, Sound Generator	
APIX® Down – Up	APIX®2 @3Gbps - 187 Mbps	APIX®2 @1Gbps - 187 Mbps	APIX®3 @12Gbps - 187 Mbps	APIX®3 @6Gbps - 187 Mbps
Content Protection	HDCP 1.4 / -	-	HDCP 1.4(APIX®3)	
Network	MII - Ethernet over APIX®2 @100 Mbps		MII - Ethernet over APIX®3 @100 Mbps	
Option			Available also without APIX®3 Rx and related features	
Daisy Chain	Yes	-	Yes, requires external Tx	-
Video input / Capture	-		Dual MIPI-DSI v1.2, dualLVDS (OpenLDI)	
SRAM – Flash	64k - 32k	128k - 56k	256k (9kB ECC) - 128k	
Standard I/O	USART-LIN, I <sup>2</sup> C, GPIO, PWM, ADC, HS-SPI		USART-LIN, I <sup>2</sup> C, GPIO, PWM, ADC, HS-SPI, CAN listener	
Stepper Motor Control	6			
Qualification	AEC-Q100, Ta -40 ...+105°C			

## Display Domain Architecture



\* SEERIS® is a registered trademark of Socionext

\* APIX stands for **A**utomotive **P**ixel **L**ink

APIX is a Point-to-Point Video and Data Link optimized for Automotive environment provided by Inova Semiconductor, which is Headquartered in Munich, Germany

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