

Gerda™ Series IC

HMI Solution for Automotive

Gerda-4M

Product Brief

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Gerda-4M

General description

Gerda-4M is a family of Gerda™ Human Machine Interface (HMI) Display ICs targeted at automotive systems such as E-Mirror and Head-Up Displays (HUD). Gerda-4M has an Arm® Cortex®-M7 CPU, Image Quality adjustment Engine, 2.5D Graphics Engine, Large Built-in RAM, Warping Engine, Hardware Security Module (HSM) and many functional safety mechanisms.

Gerda-4M integrates high-performance computing, high-speed large-capacity on-chip memory, and advanced image technologies, delivering both ease of use and robust real-time processing capabilities to enable safe and comfortable HMI solutions.

Features

• CPU subsystem

- Arm® Cortex®-M7 CPU
 - I-TCM 192 KB, D-TCM 128 KB
 - I-Cache 64KB, D-Cache 64KB
- DMA controllers 2 x 6ch

• Video subsystem

- Video Input
 - MIPI-CSI2/DSI(4lane) or DRGB or CVBS
 - max display size: 1920x1080@60FPS
- Video Output
 - Dual LVDS(4 lane) or DRGB I/F
 - max display size: 1920x1080@60FPS
- 2.5D Graphics Engine
- Warping Engine
- Image Quality adjustment Engine
 - Local Contrast Correction
 - 2DNR, Sharpness
 - Gamma, Brightness, Noise shaping
 - Others

• Memory

- Built-In RAM 8 or 10 MB
- Quad SPI Flash (Max 6)

• Audio

- I2S/TDM/PCM
- Audio DAC (PWM)

• Communication I/F

- CAN-FD 2ch
- Ethernet 100Mbps 1ch
- USB 2.0 HS 1ch
- Peripherals
 - I2C 5ch / SSP 4ch / UART 5ch
 - ADC 10bit 6ch
 - GPIO

• Security

- HSM supporting the EVITA Full
 - AES/ECC/RSA
 - PRNG/TRNG
 - NVM

• Safety

- Functional safety for ASIL-B
- Memory Protection Unit
- WDT, ECC, Dual-core Lockstep
- Boot Time BIST
- Freeze detection, Telltale check
- Others

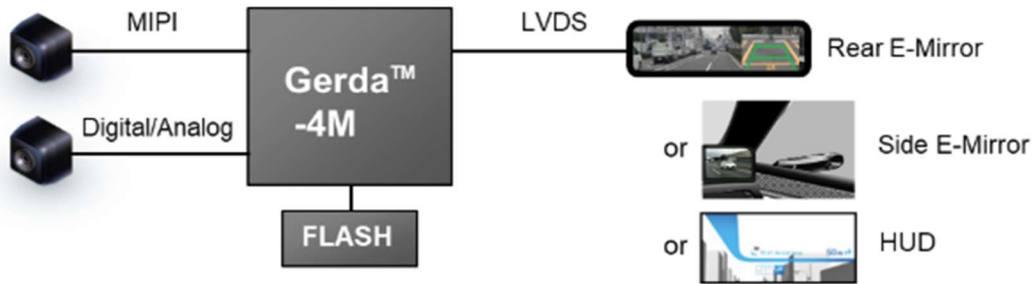
• Power

- Digital block : 0.9V
- IO block : 3.3V, 1.8V

• Package

- LQFP216L 24x24mm²

System Configuration Example



Gerda-4M Series

Part Number	KM2KSZ120UA	KM2KSZ12Z6UA	KM2KSZ180UA	KM2KSZ18Z6UA
Package	LQFP216L 24x24mm ²	LQFP216L 24x24mm ²	LQFP216L 24x24mm ²	LQFP216L 24x24mm ²
CPU	ARM Cortex®-M7	ARM Cortex®-M7	ARM Cortex®-M7	ARM Cortex®-M7
Graphics	2.5D	2.5D	2.5D	2.5D
Display size	1920x480 (recommended)	1920x480 (recommended)	1920x480 (recommended)	1920x480 (recommended)
Video input	Analog / Digital Mipi-CSI2	Analog / Digital Mipi-CSI2	Analog / Digital Mipi-CSI2	Analog / Digital Mipi-CSI2
Video output	LVDS Single	LVDS Single	LVDS Single	LVDS Single
Embedded Memory	8MB	8MB	10MB	10MB
External Memory IF	S-Flash	S-Flash	S-Flash / SDRAM	S-Flash / SDRAM
USB	-	Yes	-	Yes
Ethernet	-	Yes	-	Yes
CAN-FD	-	Yes	-	Yes
Security	-	Yes	-	Yes

LQFP216L 24x24mm², Thickness 1.40mm, Lead_Pitch 0.40mm, Lead_Length 1.00mm, EP_SIZE 7.0x7.0mm²

