

SN98670 Series

Multimedia Network Platform

Description

SONiX SN98670 Series is a highly integrated H.264 and MJPEG SoC solution. With hardwired video encoder architecture, the SN98670 Series operates at clock frequencies up to 402 MHz. The core is comprised of an ARM926EJ-S CPU with 16 KB I/D cache for computing multi-stream video encoding or image analysis in intelligent surveillance applications such as object detection.

The SN98670 Series platforms integrate a wide range of essential components for multimedia embedded systems applications such as drones and wireless toy vehicles or robotics. The SN98670 Series includes H.264 encoder, JPEG encoder, parallel/MIPI sensor interface, ISP, serial flash, SD card, DDR2, ADPCM audio controller with Audio DAC and ADC, CRC-16 engine, USB 2.0 host and device, DMA, and AMBA 2.0 bus framework

The SN98670 Series is supported by RTOS based development environments making it suitable for various embedded multimedia applications and solutions.

Features

Hardware	Details
CPU	ARM926EJ-S Processor 402 MHz with 16 KB I/D cache
Memory	SiP DDR2 32 MB up to 402 MHz, 16-bit data bus
ISP	Supports AE/AWB/AF/HDR and alpha-blending OSD
Video Codec	H.264 BP/MP/HP Level 4.1 and Baseline JPEG encode Rate control supporting Manual Region of Interest (MROI) with 8 Regions Flexible multi-streaming (see <i>Selection Guide</i>)
Sensor Input Interface	Parallel data input (10-bits RAW and YUV 4:2:2) MIPI CSI-2 with one data lane (800 Mbps)
Sensor Resolution and Format	Up to 3 MP with CMOS ISP/Bayer RAW sensors (see <i>Selection Guide</i>)
Audio Codec	16-bit sigma-delta ADC and 10-bit R2R DAC
USB	One USB 2.0 host controller, and one USB 2.0 device controller
SD/SDIO	One SD/SDIO controller supports standard SD/SDIO 1.0/1.1/2.0 specification and is compatible with SD3.0 (SDXC)
DMA Controller	Four channels that support memory to memory and memory to peripherals transfers
CRC-16	Hardware CRC-16 codec CRC-16 with polynomial is $X^{16} + X^{15} + X^2 + 1$
Peripheral	I ² C x 1, UART x 2, PWM x 3, GPIO x 3, and Pinmux x 38 RTC, Watch dog timer, Timer and JTAG
Voltage	Core: 1.14V to 1.26V (1.20V typical) DRAM: 1.7V to 1.9V (1.8V typical) I/O: 3.0V to 3.6V (3.3V typical)

Functional Block Diagram

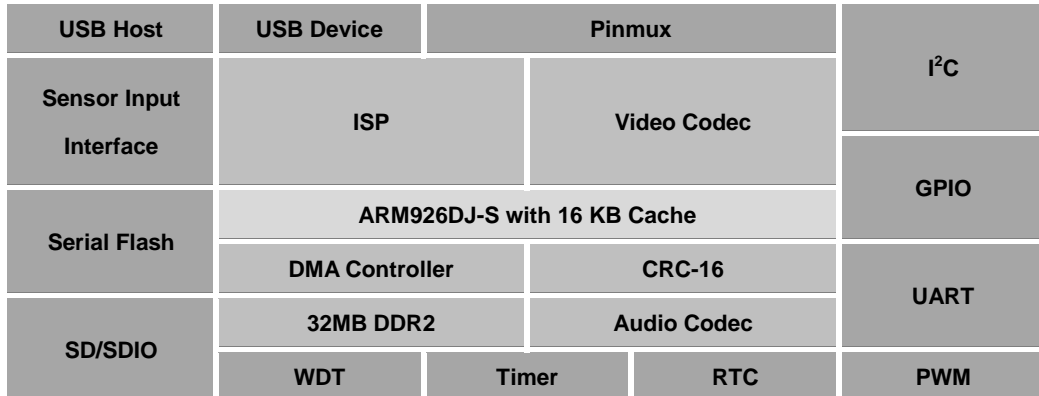


Figure 1. Functional block diagram of SONiX SN98670 Series

Selection Guide

Product	Package	Supported Sensor Resolution	Max H.264 Encoding Performance
SN98670	QFN-88	640 x 480 (VGA)	640p30 + 640p30
SN98671	QFN-88	1280 x 720 (HD) 640 x 480 (VGA)	720p30 + 720p30
SN98672	QFN-88	2048 x 1536 1600 x 1200 (UXGA) 1920 x 1080 (FHD) 1280 x 1024 (SXGA) 1280 x 720 (HD) 640 x 480 (VGA)	1080p30 + 720p20

Absolute Maximum Ratings

Product	Sensor Interface	Unit
Supply voltage ranges	All 1.20V supplies	-0.30 to 1.30
	All 1.80V supplies	-0.30 to 1.90
	All 2.50V supplies	-0.30 to 2.75
	All 3.30V supplies	-0.30 to 3.60
Input voltage ranges	All 1.80V I/Os	-0.30 to 1.90
	All 3.30V I/Os	-0.30 to 3.60
Operating case temperature ranges (T _C)	0 to 70	°C
Storage temperature ranges (T _{STG})	-40 to 150	
Note:		
1. Long-term exposure to absolute maximum ratings may affect device reliability, and permanent damage may occur if the operation exceeds the maximum ratings.		
2. All voltage values are with respect to VSS		

Electrical Characteristics

Parameter	Conditions	Limits			Unit
		Min	Typ	Max	
Input Voltage	V_{IL}	-0.30	–	0.80	V
	V_{IH}	2.00	–	3.60	
Output Voltage	V_{OL}	–	–	0.40	V
	V_{OH}	2.40	–	–	
Output Current	I_{OL_4mA}	4.8	7.1	9.4	mA
	I_{OL_8mA}	9.8	14.4	19.1	
	I_{OL_12mA}	14.8	21.8	28.8	
	I_{OH_4mA}	7.0	13.4	22.7	
	I_{OH_8mA}	13.9	26.8	45.2	
	I_{OH_12mA}	20.8	40.1	67.8	

Package Dimensions

- SONiX SN98670/671/672 QFN-88 (10 x 10 x 0.9 mm)

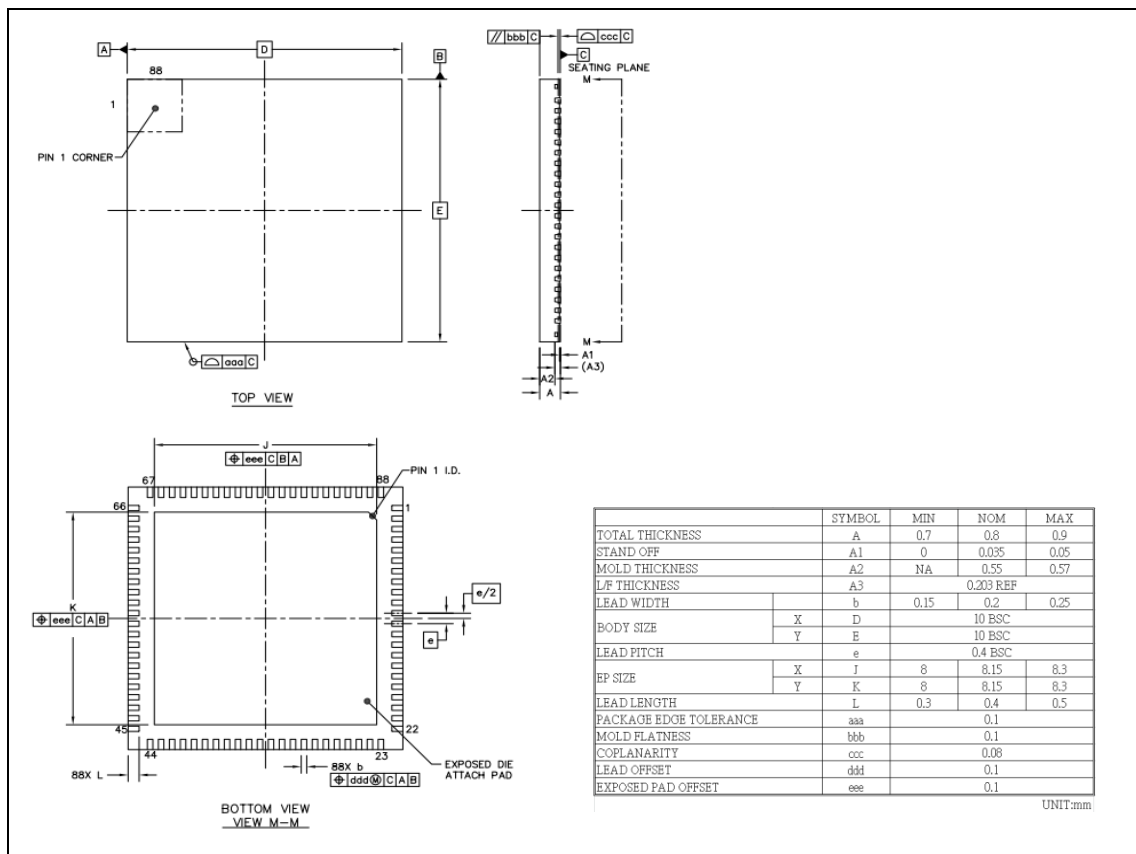


Figure 2. Package outline of SONiX SN98670 Series

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