

SN98660 Series

Multimedia Network Platform

Description

SONiX SN98660 Series is a highly integrated H.264 and MJPEG SoC solution. With hardwired video encoder architecture, the SN98660 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 H.264 encoder supports 1080p30 + 640p30, 720p30 + 720p30, or 720p30 + 640p30 multi-streams.

The SN98660 Series platforms integrate a wide range of essential components for multimedia embedded systems applications such as IP cameras, dash-cams, and wireless microscopes. The SN98660 Series includes H.264 encoder, MJPEG encoder, parallel/MIPI sensor interface, ISP, serial flash, SD card, DDR2, I²S/ADPCM audio controller with Audio DAC and ADC, CRC-16 engine, USB 2.0 host and device, DMA, 10/100M Ethernet, and AMBA 2.0 bus framework.

The SN98660 Series is supported by Linux or 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 64 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
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	2048 x 1536 (3MP), 1600 x 1200 (UXGA, 2MP), 1920 x 1080 (FHD), 1280 x 1024 (SXGA, 1.3MP), 1280 x 720 (HD), 640 x 480 (VGA, 0.3MP) with CMOS ISP/Bayer RAW sensors
Audio codec	16-bit sigma-delta ADC and 10-bit R2R DAC
Ethernet	One 10/100M EtherMAC with RMII interface
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	10 / 100M Ethernet media access controller I ² C x 1, UART x 2, PWM x 3, GPIO x 3, SPI x 1, and Pinmux x 38 RTC, watchdog 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

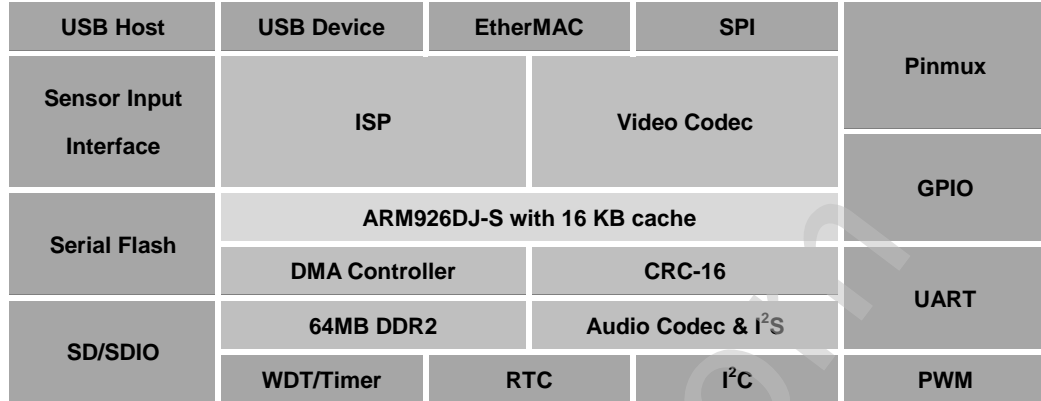


Figure 1. Functional block diagram of SONIX SN98660 Series

Absolute Maximum Ratings

Parameter		Rating	Unit
Supply voltage ranges	All 1.20V supplies	-0.30 to 1.30	V
	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}	all conditions	-0.30	—	0.80	V
	V _{IH}		2.00	—	3.60	
Output Voltage	V _{OL}	all conditions	—	—	0.40	
	V _{OH}		2.40	—	—	
Output Current	I _{OL_4mA}	V _{OL} = 0.45 V	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}	V _{OL} = 2.40V	7.0	13.4	22.7	
	I _{OH_8mA}		13.9	26.8	45.2	
	I _{OH_12mA}		20.8	40.1	67.8	

Packaging Dimensions

- SONiX SN98660/661 LQFP-128-EP (14 x 14 x 1.4 mm)

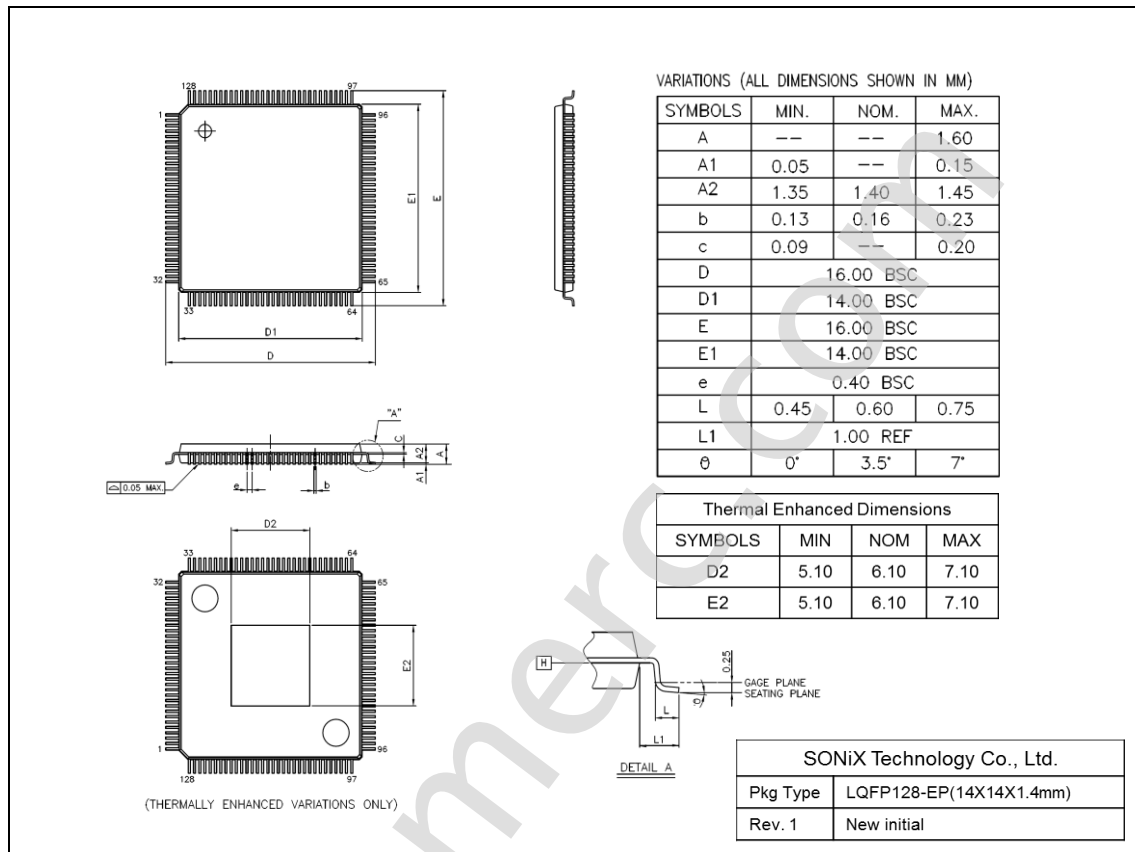


Figure 2. Package outline of SONiX SN98660 Series

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