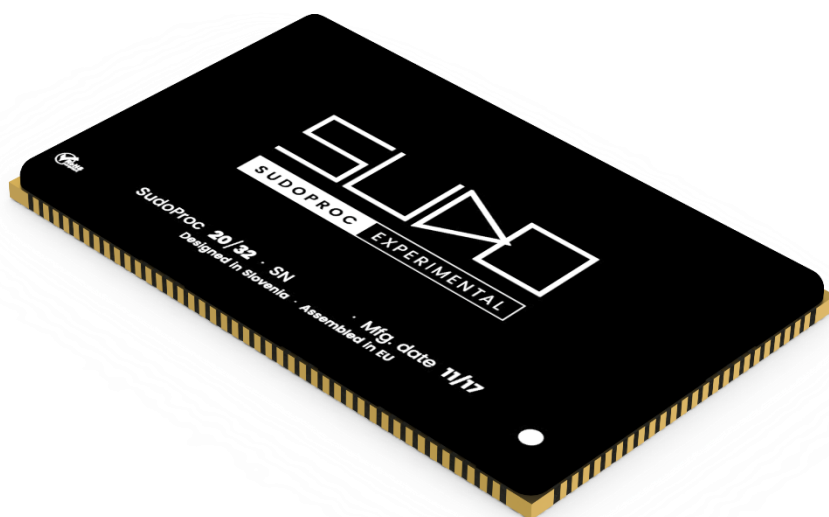




# SudoProc Specifications

version 1.0



Sudo Systems d.o.o.  
Razlagova ulica 2, 2000 Maribor, Slovenia  
(EU)  
[www.wearesudo.com](http://www.wearesudo.com)



## Overview

Lightning fast system on module. Made for performance and speed. In the IoT industry, there's no excuse for slow-responding devices.

SudoProc is capable of playing multiple Full 4K HD videos without buffering.

SudoProc highlighted features:

- 4GB LPDDR3
- Based on Cortex A-17, ARM (v7) with NEON co-processor Quad Core
- Small size 65 x 40 x 4,3mm
- Solderable and tiny
- Reliable software implementation
- Multiple OS support
- Aluminium dissipation design keeps the SOM cool

## System Specifications

PROCESSOR	
Type	Cortex-A17, ARM (v7) with NEON co-processor
Cores	Quad Core
Speed	1,8 GHz

MEMORY	
Size	4 GB LPDDR3
Speed	1066 MHz
Configuration	2 x 32 bit, dual channel

VIDEO I/O	
eDP output	eDPTM Specification, version 1.3, 4K x 2K @ 30fps
HDMI	HDMI 1.4 and 2.0 operation, 1080p @ 120 Hz and 4K x 2K @ 60 Hz
LVDS (optional on demand)	TIA/EIA -644-A, 10 data lanes total – single & dual channel
MIPI PHY	MIPI 0 TX, MIPI 1 RX and TX, MIPI 2 RX, 4 data lanes, up to 4 Gbps, 1080p @ 60 fps output
CIF input	8 bits BT656 (PAL / NTSC) interface, 16bits BT601 DDR interface, 8bits / 10bits / 12bits raw data interface, Maximum input resolution 14M (4416 x 3312) pixels



GRAPHICS	
Graphics processor	Mali-T764 @ 650 MHz
3D graphics engine	Embedded 4 shader cores with shared hierarchical tiler, Pixel rate: 2.6G pixels/s @ 400 MHz, Max frequency: 500 MHz, OpenGL ES1.1 / 2.0 / 3.0, OpenCL 1.1/1.2 and DiresctX 11
2D graphics engine	Max frequency: 500 MHz Pixel rate: 320Mpix/s without scale, 256Mpix/s with scale @ 400 MHz
Video processing unit	H.264 decoder 2160 p @ 24 fps, H.265 decoder 2160 p@ 30 fps and H.264/MVC/VP8 encoder 1080 @ 30 fps
Image processor	Image pre-processor, Video stabilization, Image Post-Processor (embedded inside video decoder), Image Enhancement-Processor (IEP)
JPEG Codec	Decoder 48 x 48 to 8176 x 8176 (66.8 Mpixels), Encoder 96 x 32 to 8192 x 8192 (64 Mpixels), YCbCr 4:0:0, 4:2:0, 4:4:0, 4:1:1 and 4:4:4, From RGB444 and BGR444 up to RGB101010 and BRG101010

AUDIO I/O	
I2S	Up to 8 channels (4 x TX, 2 x RX), Audio resolution from 16 bits to 32 bits, Sample rate up to 192 KHz, 8 channel, 192 KHz, 16 bit and 32 bit
SPDIF (optional on demand)	Support 16,20,24 bits audio data transfer in linear PCM mode

NETWORK	
RGMII interface	10 / 100 / 1000 – Mbps, Supports IEEE 802.3x and IEEE 802.1Q
SDIO interface	3.0 Protocol, 4 bit data bus

INTERNAL STORAGE	
Type	eMMC4.5
Interface	8bit, 200 MB/s
Capacity	32 GB / 64 GB / 128 GB / 256 GB / 512 GB

EXTERNAL STORAGE	
NAND Flash interface	8 bits, up to 4 banks, Async or sync DDR up to 75 MHz, Up to 60 bits hardware ECC
SDMMC interface	SDMMC 3.0 (4 bit)

GPIO, SERIAL	
SPI	3x Master or slave mode with 2 chip select outputs
UART	5x Asynchronous (3 with flow control), Up to 4 Mbps or other special baud rate, 64 byte FIFO for TX / RX operation
I2C	5x Multi-master operation, Support 7 bits and 10 bits address mode, Up to 400 Kbit/s
SAR-ADC	3 channel (10 bit), Up to 1 MSPS, 0V to 1.8V
USB host 2.0	Supports high-speed (480 Mbps), full-speed (12 Mbps) and low-speed (1.5 Mbps) mode, Provides 16 host mode channels
USB OTG	Compatible with USB OTG2.0 specification, Supports high-speed (480 Mbps), full speed (12Mbps) and low-speed (1,5 Mbps) mode, Provides 9 host mode channels
HSIC 2.0 interface (optional on demand)	Compliant with the USB 2.0 specification
GPS interface	Complete 1-band, C/A and NMEA-0183 compatibility, Support reference frequencies 16.368 MHz, 32 DMA channels for AHB master access
Host interface	Low Pin Count interface (8 inputs / 16 outputs or 16 inputs / 8 outputs), All signals driven using source synchronous clock (2 DDR clock signals per direction for TX and RX paths)
PS2 interface (optional on demand)	Support PS/2 master mode up to 33 kHz
Smart card (optional on demand)	T0, T1
TS interface	Supports 2 Built-in PTIs, 64 PID filters, CSA v2.0 standard, up to 104 Mbps, 4/8 PCR extraction channels, 8/10 bit
PWM (with interrupt)	4 x 32-bit timer/counter
GPIOs (all can be used as interrupt)	Up to 100x

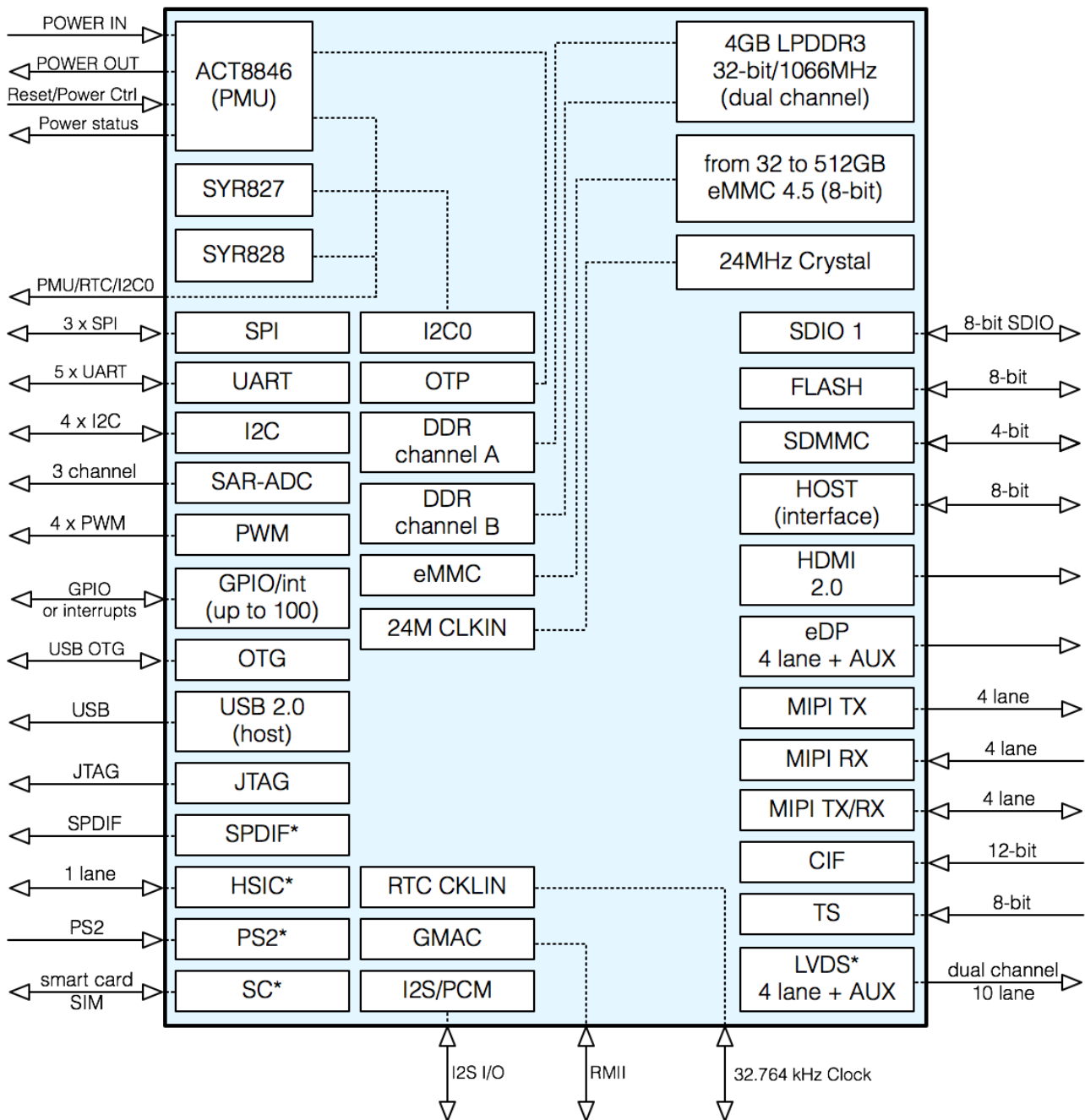
SECURITY	
AES	Up to 256 bit
DES and TDES	ECB and CBC modes
SHA	SHA-1 to SHA-512
PKA	From 128 bit to 3136 bit in steps of 32 bits
Cortex-A12 security mode	TZMA and TZPC
eFUSE	2 x (one 256 bits (32 x 8) and one 102 bits (32 x 32))

ELECTRICAL	
Input voltage	5 V ( $\pm 10\%$ )
Input current	Max. 3 A
PMIC	ACT8846
PMIC remote control	Yes (with GPIO, I2C, Reset)
I/O operation range	3.3 V or 2.5 V or 1.8 V ( $\pm 10\%$ ), depends on port configuration
Output mode	Independent output control over I2C
Output 1	3.3 V / 2 A
Output 2	2 V / 1 A
Output 3	3.3 V / 150 mA
Output 4	3.3 V / 350 mA
Output 5	3.3 V / 350 mA
Output 6	3.3 V / 350 mA
Output 7	1.8 V / 150 mA
Output 8	1.8 V / 350 mA
Input 2	Vcc MAC (1.8 - 3.3 V)
Input 3	Vcc CIF/TS (1.8 - 3.3 V)

THERMAL	
Max TDP	10 W
Heatsink	Additional heatsink is not required with proper PCB thermal design
Operating temperature range	- 25 °C to + 85 °C
Storage temperature range	- 25 °C to + 85 °C

PHYSICAL	
Footprint	Custom LGA218
Pin count	218
Dimensions	L: 65 mm W: 40 mm H: 4.3 mm

## Block Diagram



\* on demand



## Available versions

VERSIONS				
SudoProc 32	SudoProc 64	SudoProc 128	SudoProc 256	SudoProc 512
FLASH				
32 GB	64 GB	128 GB	256 GB	512 GB

## Safety Notice

- This device is to be used with certified power adaptor with output rated 5VDC, 3A. Power adaptor must meet limited power source (LPS) requirements.
- Power adaptor must meet local safety standards and requirements based on product intended use.
- Power adaptor must meet Operating environment conditions as specified above.

## IMPORTANT NOTICE – please read carefully

No warranty of accuracy is given concerning the contents of the information contained in this document. To the extent permitted by law no liability (including liability to any person by reason of negligence) will be accepted by Sudo Systems d.o.o. or its employees for any direct or indirect loss or damage caused by omissions from inaccuracies in this document.

Sudo Systems d.o.o. reserves the right to change details in this publication without notice.

Product and company names herein may be the trademarks of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.

## Support

For technical support please visit:

<https://wearesudo.com/support/>

## Purchase

<https://wearesudo.com/buy-and-sample/>

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [System-On-Modules - SOM category](#):*

*Click to view products by [Sudo manufacturer](#):*

Other Similar products are found below :

[COMX-CORE-310](#) [COMX-P4040-4G-ENP2](#) [PICOIMX6U10R1GBNI4G](#) [PICOIMX6U10R1GBNI4GBW](#) [MC27561-TIGER](#) [MC27561-LION](#) [CC-WMX6UL-SMPL](#) [CB-52-PUS-110-SX](#) [BD63725BEFV-EVK-002](#) [5728-PJ-4AA-RI](#) [A00150](#) [COMX\\_P4080](#) [A20-SOM-EVB](#) [RK3188-SOM](#) [RK3188-SOM-4GB](#) [100-1225-1](#) [PICOIMX6Q10R1GBNI4G](#) [Nit6Q](#) [A20-SOM-N8GB](#) [PER-TAICX-A10-001](#) [PER-TAIX2-A10-2280](#) [EDL-mPCIe-MA2485](#) [SOM-5897C7-U0A1E](#) [SOM-6896C7-U2A1E](#) [SCM180-Dual-2G\\_Industrial](#) [3354-HX-X38-RC](#) [5728-PJ-4AA-RC](#) [6455-JE-3X5-RC](#) [ET876-X7LV](#) [IFC6301-10-P2](#) [IFC6502-00-P1](#) [IFC67A1-00-P1](#) [IFC6701-00-P1](#) [iW-G33M-SCMQ-4L002G-E008G-BII](#) [PWSE1000200B](#) [CS-DEPTHAI-04](#) [MTQ-LNA7-B02](#) [MYC-C8MMQ6-8E2D-180-C](#) [MYD-C4378-4E512D-100-I](#) [MOD5213-100IR](#) [MODM7AE70-100IR](#) [A20-SOM](#) [A20-SOM204-1G](#) [A20-SOM204-1GS16ME16G-MC](#) [AM3352-SOM-EVB](#) [BS1-IC](#) [BS2-IC](#) [102110278](#) [SLS16Y2\\_792C\\_256R\\_256N\\_0SF\\_I](#) [SLS12RT52\\_528C\\_0R\\_4QSPI\\_0SF\\_I](#)