

TI TDA4VM SMARC – Accelerated Computing

conga-STD4

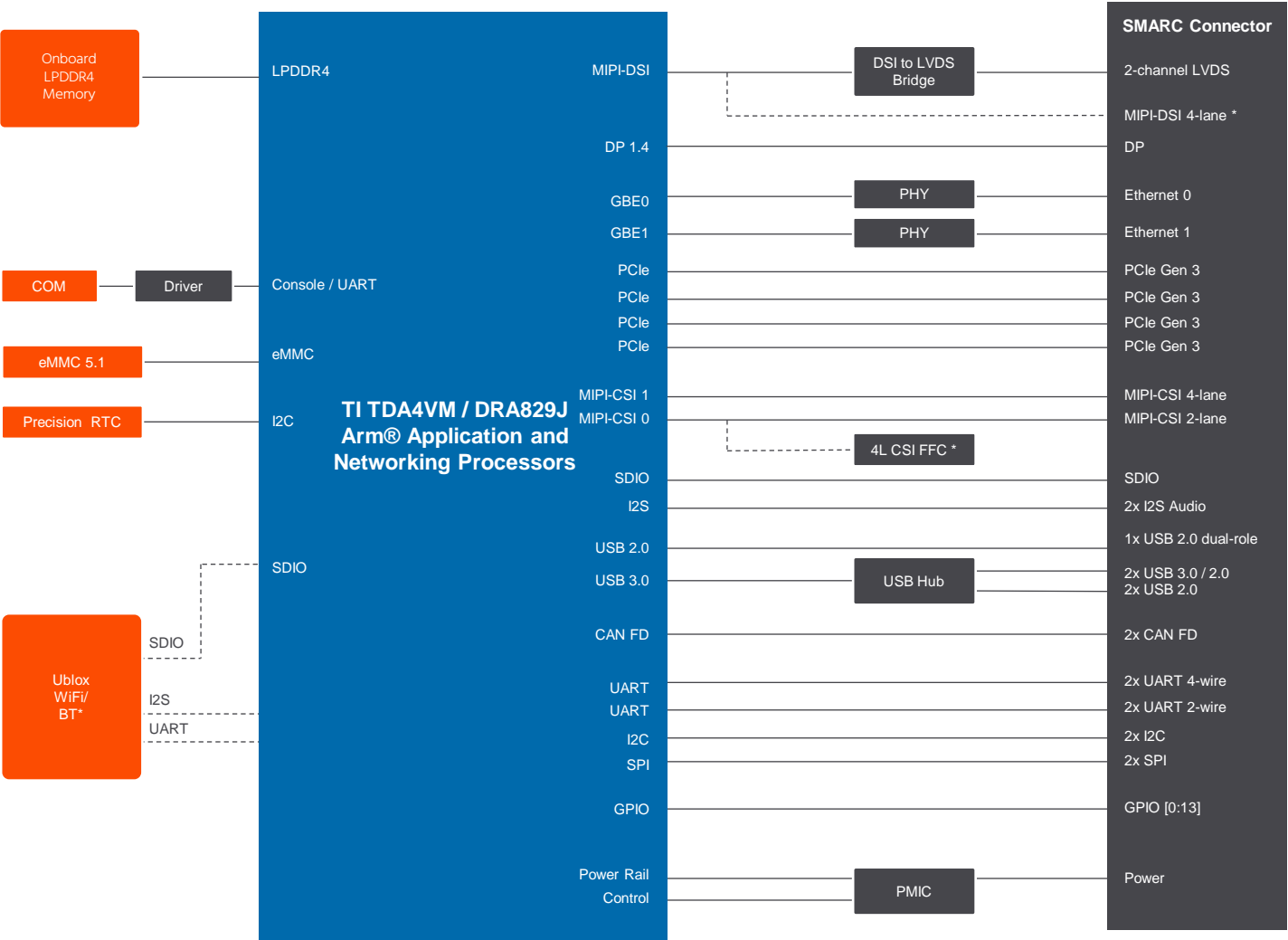


- SMARC Module based on TI TDA4VM application processor and DRA829J Arm® networking processor
- Heterogenous architecture with dual Arm® Cortex®-A72, DSP and accelerators for deep learning and multimedia
- Arm® Cortex®-R5F MCUs to offload real-time communication
- Highest reliability for harsh environment applications
- Industrial temperature range -40°C to +85°C



Form factor	SMARC Module Specification 2.1					
SoC	TI TDA4VM and DRA829J Arm® Application and Networking Processors					
	TDA4VM88 DRA829JM	Arm Cortex-A72 2x @ 2.0 GHz 2x @ 2.0 GHz	ARM Cortex-R5F 6x @ 1.0 GHz 6x @ 1.0 GHz	DSP Cores 1x C7x up to 80 GFLOPs & 2x C66 up to 40 GFLOPs	MMA Deep Learning Up to 8 TOPS	GPU 3D PowerVR Rogue 8XE GE8430
DRAM	Up to 8 GB onboard LPDDR4x memory 3733 MT/s inline ECC 8 MB of on-chip L3 RAM with ECC and coherency 512KB on-chip SRAM in MAIN domain, protected by ECC					
Ethernet	2x Gbit Ethernet with IEEE 1588 support					
I/O Interfaces	1x dual-role USB 2.0 2x USB 2.0 2x USB 3.0 1x SDIO 3.0 2x PCIe 3.0 x1 + 1x PCIe 3.0 x2 or up to 4x PCIe 3.0 x1 2x I²C 2x SPI 4x UART (2x with Handshake) 2x CAN FD 14x GPIO optional full industrial onboard Ublox WiFi/BT module					
Mass Storage	eMMC 5.1 up to 128 GB optional pseudo-SLC					
Sound	2x I²S					
Graphics	Integrated in SoC Graphics Accelerator 3D GPU PowerVR Rogue 8XE GE8430 up to 1x Ultra-HD or 4x Full-HD 60fps display resolution Up to 4 concurrent displays VPU up to 4k60p H.264/H.265 decode / 1080p60 H.264 encode OpenGL ES 3.1 OpenVX OpenCL					
Video Interfaces	1x dual channel 24-bit LVDS 1x Display Port 1.4 supports up to 4 1080p60 displays via MST optional 1x MIPI-DSI 4-lane shared with LVDS 2x MIPI-CSI up to 2x integrated Image Signal Processor (ISP) for MIPI-CSI camera on TDV4VM					
Features	Watchdog Timer Console Port High Precision Real Time Clock					
AI & Deep Learning	Deep-learning Matrix Multiply Accelerator Accelerators (MMA) with up to 8 TOPS (8b) C7x floating point, vector DSP with up to 80 GFLOPs Vision Processing Accelerators (VPAC) with Image Signal Processor (ISP) and multiple vision assist accelerators Depth and Motion Processing Accelerators (DMPAC)					
Security	Customer programmable root key, up to RSA-4K or ECC-512 Crypto hardware accelerators, PKA with ECC, AES, SHA, RNG, DES and 3DES Secure boot with secure runtime support SHE, Encryption Engine AES-128, AES-256, TRNG, SHA-1, SHA-2, SHA-256, MD-5 RSA-1024, 2048, 3072, 4096 and secure key storage					
Boot Loader	U-Boot boot loader					
Operating Systems	Linux QNX RTOS					
Power Consumption	Typ. application 5-10W @ 5V					
Temperature Range	Operating Temperature Range: Storage Temperature Range:		-40 to +85°C industrial grade -40 to +85°C			
Humidity	Operating: 10 - 90% r. H. non cond.		Storage: 5 - 95% r. H. non cond.			
Size	82 x 50 mm (3,23" x 1,97")					

conga-STD4 | Block Diagram



* Assembly Option

conga-STDA4 | Order Information

Article	PN	Description
conga-STDA4/i-TDA4VM-4G eMMC32	051510	SMARC Module based on high-performance industrial TI TDA4VM Arm® Application processor. Features 2x ARM Cortex-A72 @ 2.0GHz + 6x ARM Cortex-R5F + 8 TOPS MMA (deep-learning matrix multiply accelerator), 4GB onboard LPDDR4x memory and 32GB onboard eMMC. Industrial grade temperature range from -40°C to +85°C.
conga-STDA4/i-TDA4VM-2G eMMC32	051511	SMARC Module based on high-performance industrial TI TDA4VM Arm® Application processor. Features 2x ARM Cortex-A72 @ 2.0GHz + 6x ARM Cortex-R5F + 8 TOPS MMA (deep-learning matrix multiply accelerator), 2GB onboard LPDDR4x memory and 32GB onboard eMMC. Industrial grade temperature range from -40°C to +85°C.
conga-STDA4/i-DRA829J-4G eMMC32	051512	SMARC Module based on high-performance industrial TI DRA829J Arm® Networking processor. Features 2x ARM Cortex-A72 @ 2.0GHz + 6x ARM Cortex-R5F + 8 TOPS MMA (deep-learning matrix multiply accelerator), 4GB onboard LPDDR4x memory and 32GB onboard eMMC. Industrial grade temperature range from -40°C to +85°C.
conga-STDA4/i-DRA829J-2G eMMC32	051513	SMARC Module based on high-performance industrial TI DRA829J Arm® Networking processor. Features 2x ARM Cortex-A72 @ 2.0GHz + 6x ARM Cortex-R5F + 8 TOPS MMA (deep-learning matrix multiply accelerator), 2GB onboard LPDDR4x memory and 32GB onboard eMMC. Industrial grade temperature range from -40°C to +85°C.
conga-STDA4/i-TDA4VM-2G eMMC32 MAYA-W160	051520	SMARC Module based on high-performance industrial TI TDA4VM Arm® Application processor. Features 2x ARM Cortex-A72 @ 2.0GHz + 6x ARM Cortex-R5F + 8 TOPS MMA (deep-learning matrix multiply accelerator), 4GB onboard LPDDR4x memory and 32GB onboard eMMC. Features Ublox Wifi/BT module MAYA-W260. Industrial grade temperature range from -40°C to 85°C.
conga-STDA4/CSP-B	051550	Passive cooling solution for SMARC Module conga-STDA4 based on TI TDA4VM and DRA829J Arm® processors. All standoffs are with 2.7 mm bore hole.
conga-STDA4/HSP-B	051551	Standard heatspreader for SMARC Module conga-STDA4 based on TI TDA4VM and DRA829J Arm® processors. All standoffs are with 2.7 mm bore hole.
SMARC/CSA Adapter	050060	Active cooling solution adapter for SMARC modules used in combination with module heat spreader.
conga-SEVAL	007010	Evaluation carrier board for SMARC modules.
conga-SMC1/SMARC-ARM	020750	3.5" carrier board for congatec SMARC modules based on ARM architecture.

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