LITE LINE

DAVE Embedded Systems

- Texas Instruments AM335x Cortex-A8 processors family
- LITE Line - ARM Cortex-A8 architecture @ up to 1000 MHz
- NEON Multimedia Coprocessor and PowerVR® SGX Graphics Engine
- Dual Programmable Real-Time Unit and Industrial Communication Subsystem (PRU-ICSS)
- Crypto Hardware Accelerator (AES, SHA, PKA, RNG)
- SO-DIMM 204-pin form factor
- Rich interfaces set including Dual CAN and Ethernet
- Wide range PSU 3.6V-5.5V Evaluation Board available with exhaustive Development Kit

DIVA
TEXAS INSTRUMENTS "Sitara" AM335x CPU MODULE

DIVA is a ready-to-use CPU module by DAVE Embedded Systems, based on Texas Instruments Cortex-A8 application processor from AM335x (Sitara) family.

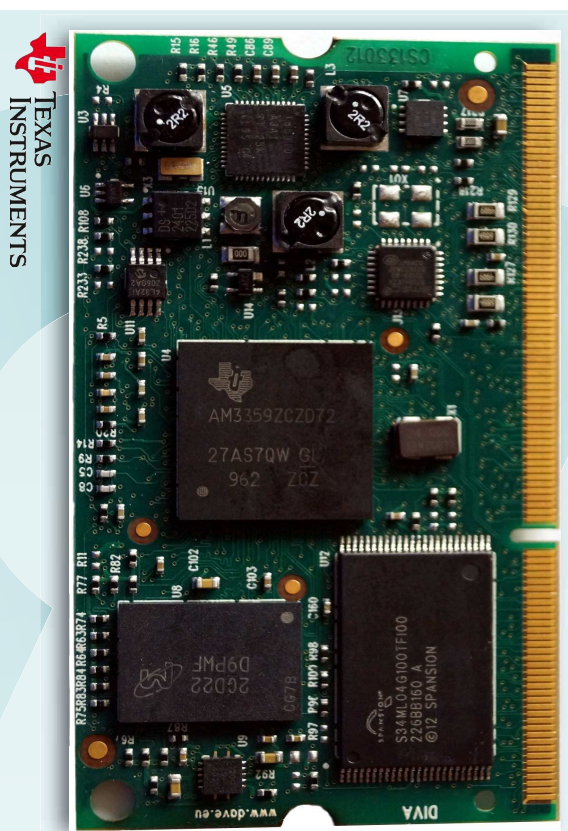DIVA is the top product of DAVE Embedded Systems' LITE Line.

DAVE Embedded Sysyems proposes at the customer an high flexibility using an ARM cortex -A8 scalable from 300 MHz to 1GHz.

This processor offers feature high processing performance, low power, lots of graphics, processing, peripherals and industrial interface options, allowing customer to implement cost-effective designs.

The dual Programmable Real-Time Unit and Industrial Communication Subsystem (PRU-ICSS) adds further flexibility and enables additional peripherals interfaces and real-time protocols such us EtherCAT, PROFINET, EtherNet/IP, PROFIBUS, Ethernet Powerlink.
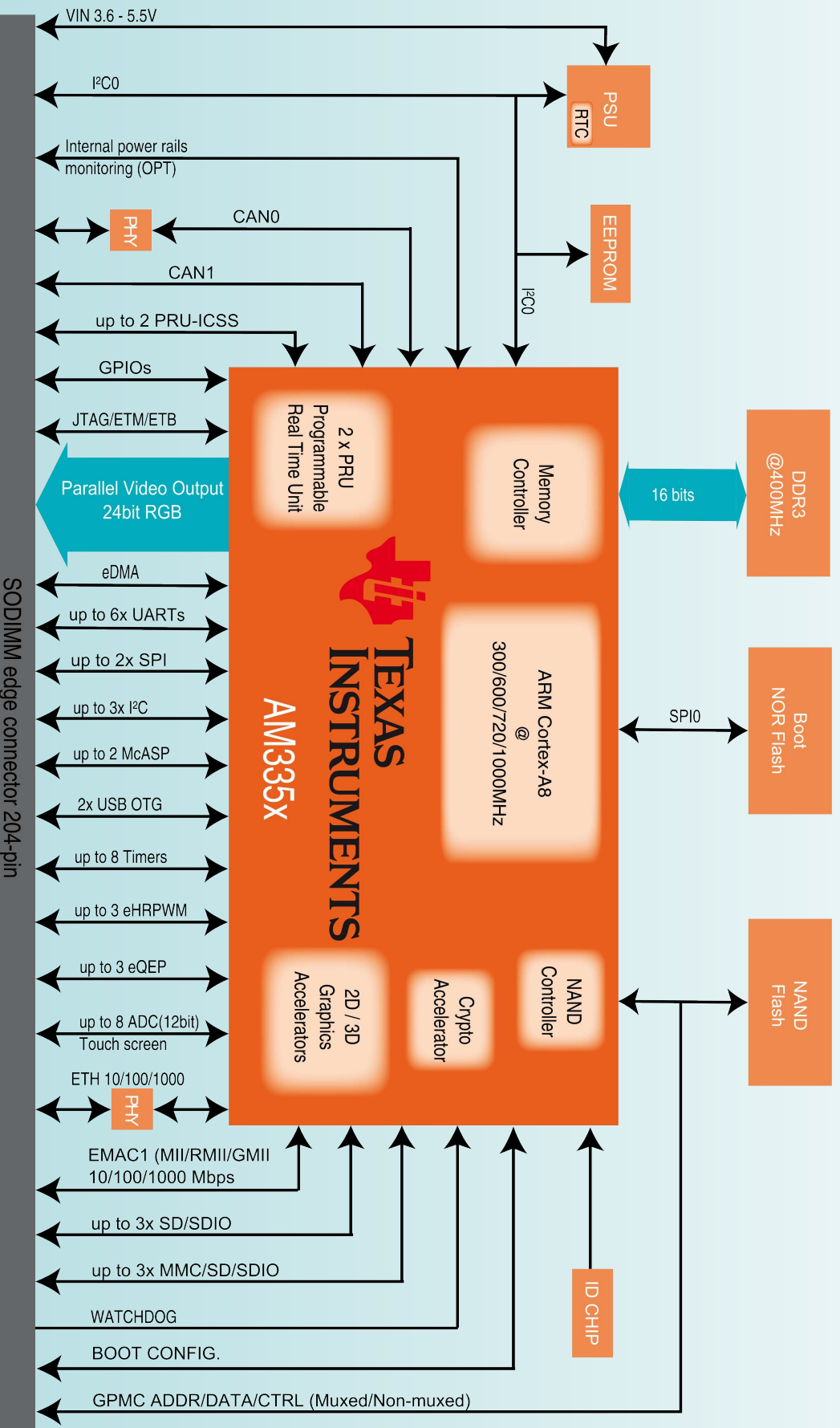
The wide range PSU 3.6V- 5.5V enables designers to create smart products suitable for harsh mechanical and thermal environments, allowing the development of high computing and reliable solutions. DIVA is designed in order to keep full compatibility with the LITE Line CPU modules where quality and reliability are important factors.

Cryptographic Acceleration is available for AM335x which operates separately from the ARM core and all of the cryptographic processing is offloaded from the ARM to distinct security accelerators elsewhere in the hardware. This offloads the processing of computationally and it is particularly well suited to perform the user interface, graphics, the WiFi wireless communications stack and most application software.

DIVA is suitable for high volume applications where the price/quality ratio is important such as Home Automation, portable solutions, Human Machine Interfaces and Industrial Automation, Profibus, Ethercat slaves, moreover Medical applications (thanks to the internal voltage feature).

Block Diagram (AM335x)

TEXAS INSTRUMENTS AM335x

- VIN 3.6 - 5.5V
- I²C0
- Internal power rails monitoring (OPT)
- CAN0 — PHY
- CAN1
- up to 2 PRU-ICSS
- GPIOs
- JTAG/ETM/ETB
- Parallel Video Output 24bit RGB
- eDMA
- up to 6x UARTs
- up to 2x SPI
- up to 3x I²C
- up to 2 McASP
- 2x USB OTG
- up to 8 Timers
- up to 3 eHRPWM
- up to 3 eQEP
- up to 8 ADC(12bit) Touch screen
- ETH 10/100/1000 — PHY
- EMAC1 (MII/RMII/GMII) 10/100/1000 Mbps
- up to 3x SD/SDIO
- up to 3x MMC/SD/SDIO
- WATCHDOG
- BOOT CONFIG.
- GPMC ADDR/DATA/CTRL (Muxed/Non-muxed)

SODIMM edge connector 204-pin

Internal blocks:
- 2 x PRU Programmable Real Time Unit
- Memory Controller
- ARM Cortex-A8 @ 300/600/720/1000MHz
- 2D / 3D Graphics Accelerators
- Crypto Accelerator
- NAND Controller

External blocks:
- PSU / RTC
- EEPROM
- I²C0
- DDR3 @400MHz — 16 bits
- Boot NOR Flash — SPI0
- NAND Flash
- ID CHIP

CPU	Texas Instruments AM335x ARMv7 architecture Cortex A8 @ up to 1000 MHz
Coprocessor	NEON Media Technology (Advanced SIMD coprocessor) PowerVR SGX 530 3D Graphics Accelerator Up to 20 Mpoly/s, support for OpenGL ES 1.1/2.0 and OpenVG 1.0.1 Crypto Hardware Accelerator (AES, SHA, PKA, RNG)
Supervisor	On board power supply supervision and power sequencer Watchdog and RTC

Memory

Cache	L1: 32Kbyte instruction, 32Kbyte data L2: Unified data/instruction, 512 KByte
SDRAM	Up to 512MB DDR3 @ 303MHz
NOR	Bootable SPI NOR 16, 32 MB
NAND	All sizes, on request
SRAM	64 KByte
EEPROM	Yes

Interfaces (full-spec models) *

LAN	Ethernet 10/100 Mbps (PHY on board) Additional MII/RMII/RGMII Interface
UART	up to 6x UART ports
CAN	2x CAN controller (version 2 part A, B)
USB	Up to 2x 2.0 OTG ports
PRU	Up to 2x Programmable Real-Time Units (PRU-ICSS)
SDIO	Up to 3 x SD/MMC card
Audio	Up to 2x McASP interface
Video Output	24-bit, up to 2048x2048 LCD controller TFT/RGB
Debug	JTAG IEEE 1149.1 Test Access Port ETB port EMU port
Other	Up to 3x I²C channels Up to 2x SPI channel GPIOs available Up to 8x 12-bit ADC channels

Mechanical

Connectors	204-pin SO-DIMM
Size	67.5 mm x 38.3 mm
Temperature	Commercial (0°C / +70°C) temperature range Industrial (-40°C / +85°C) temperature range

PSU

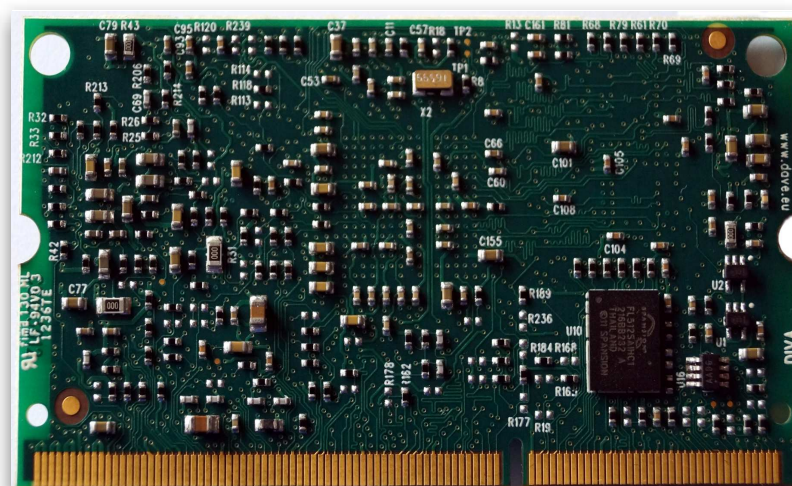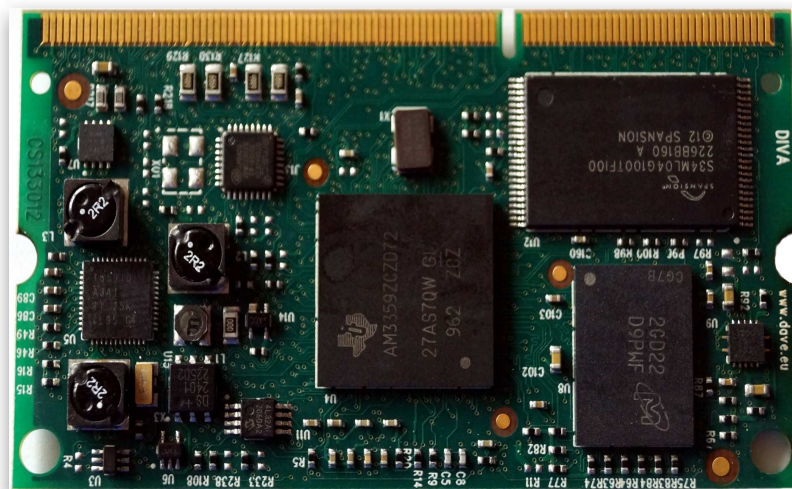| Input	3.6 - 5.5V, voltage regulation on board

Software

Bootloader	U-Boot
Multitasking	Linux 2.6.xx

Evaluation Kit

DIVA evaluation kit is available in a developement kit that includes a SOM, a carrier board and all accessories required for immediate start-up.

*: interface availability depends on pin multiplexing. Please contact your local FAE.

Product code configurator *

Family	Processor	NOR flash	DDR RAM	NAND flash	[FIX]	Temp. range
DD	A: AM3352 300Mhz	0: No NOR	7: 128MB	0: No NAND	22**	I: -40 / +85°C Industrial temp.
	B: AM3354 600Mhz	4: 16MB	8: 256MB	7: 128MB		C: 0 / 70°C Commercial temp.
	C: AM3352 1Ghz	5: 32MB	9: 512MB	8: 256MB		
	D: AM3356 600Mhz	6: 64MB		9: 512MB		
	F: AM3359 720Mhz			1: 1GB		
	G: AM3352 600Mhz			2: 2GB		
	H: AM3354 1Ghz					

** Standard configuration. For further information, please contact your local FAE

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