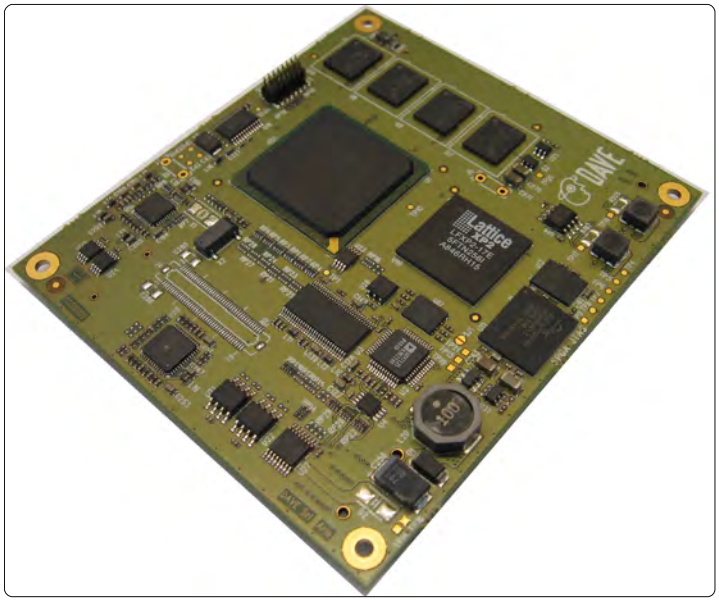
Aria
Freescale MPC512x
CPU module

DAVe
Simply Embedded

- CPU module based on Freescale MPC512x Power Architecture CPU
- e300 core built on Power Architecture technology
- Up to 400 MHz performance and 760 MIPS
- 32-bit RISC audio accelerator engine (AXE)
- PowerVR® MBX Lite 2D/3D Graphics Engine
- Evaluation Board available with exhaustive Development Kit
- FPGA on board for high flexibility
- Ready for Linux 2.6 + native component driver



ARIA is a high-level PowerPC CPU module based on Freescale MPC512x Power Architecture microprocessor.

ARIA is suitable for single board computing for industrial, automotive and consumer applications, including embedded solutions requiring network connectivity, sophisticated displays, rich user-interfaces (telematics, rear-seat entertainment systems, vehicle connectivity, infotainment, surveillance and security systems).

ARIA allows quick deployment of solutions due to the COM Express compliance and provides high flexibility thanks to the powerful FPGA on board.

Main Features

- Up to 1 GB DDR2 SDRAM
- Flash NOR (up to 128 MB) and Flash NAND (up to 1 GB) on board
- 4 x USB, 2 x UART, 2 x CAN
- SRAM with battery backup
- 1 x Serial ATA, 1 x Parallel ATA, 1 x SD/MMC
- Fast Ethernet LAN
- DIU Integrated Display Controller supports up to XGA resolution
- 1 x LVDS, 1 x VGA
- PCI, LPC and I2C buses
- Touch Screen controller
- Small form factor: 95mm x 84mm
- Available as COM Express Pluggable, Plus and Enhanced profiles

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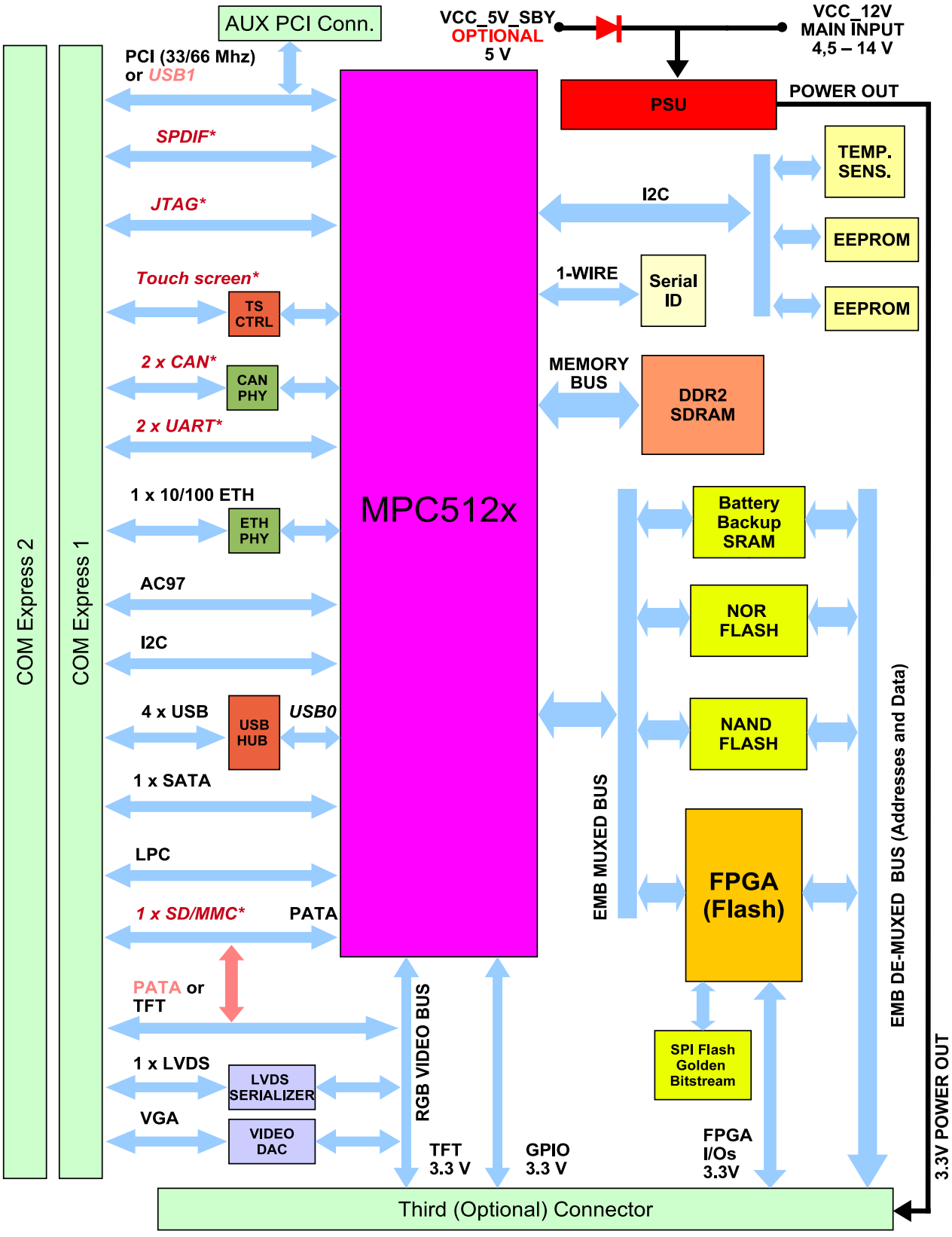
Block Diagram

*** : Interface available only on COM Express Plus and COM Express Enhanced profiles**



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Technical Specification

CPU	Freescale MPC5121e and MPC5123 e300 Power Architecture core, 90 nm process 760 MIPS @ 400 MHz
Multimedia	PowerVR MBX Lite 2D/3D Graphic Accelerator 32 bit AXE RISC Audio Accelerator
Supervisor	On board power supply supervision and power sequencer Watchdog
Memory	
Cache	32 Kbyte instruction, 32 Kbyte data
SDRAM	64, 128, 256, 512 or 1024 MB DDR2
NOR	8, 16, 32, 128 MB
NAND	All sizes, on request
SRAM	Up to 512 Kbyte, battery backup
EEPROM	2x 32 Kbyte (1 COM Express standard EEPROM, 1 user EEPROM)
Interfaces	
LAN	Fast Ethernet 10/100 Mbps
UART	2x UART ports (1x full, 2x four-wires)
USB	4x 2.0 Host ports
CAN	2x ports (2.0A/B protocol)
External Bus	PCI specification v2.3 compliant, 32 bit, 33/66 MHz LPC bus
Debug	JTAG IEEE 1149.1 Test Access Port (for CPU and FPGA)
PC Card	SD/MMC card host controller
Audio	S/PDIF serial audio interface AC97 controller
Hard Disk Support	100 MB/s Parallel ATA IDE controller 150 MB/s Serial ATA controller
Other	On-board Flash FPGA Temperature sensor 1-wire Silicon Serial Number GPIOs available Configuration pins available
Video	
Resolution	Display Interface Unit supports up to 1280x720
Type	TFT
LVDS	Yes
VGA	Yes
Touch Screen	Yes
Mechanical	
Connectors	2x COM Express type 2 1x optional connector (for COM Express enhanced versions)
Physical	95 mm x 87 mm
Temperature	Commercial (0°C / +70°C) Temperature Range Industrial (-40°C / +85°C) Temperature Range
PSU	
Input	4.5V - 14V. Full regulation on board
Consumption	TBD
Software	
Bootloader	U-Boot
Multitasking OS	Linux 2.6.xx
Agency approvals	
Pre-compliance	TBD

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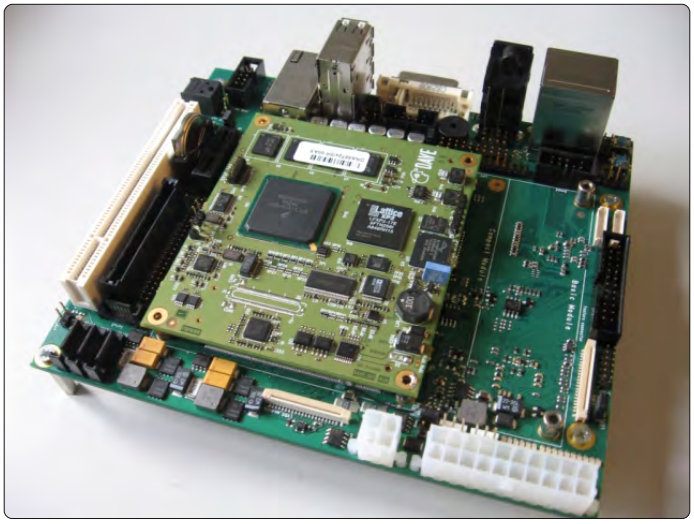
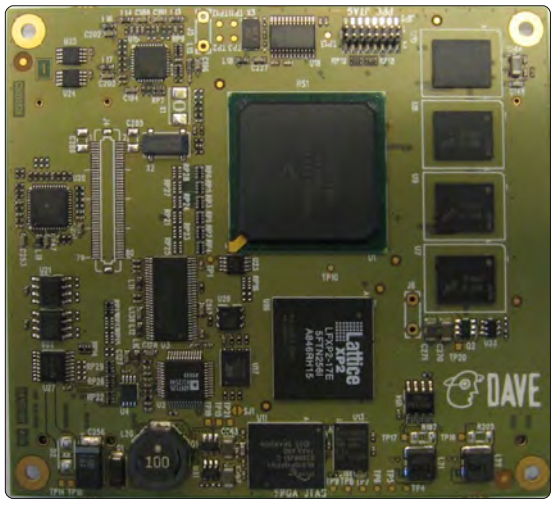
Key Factors

- Power Supply
  - Extended input voltage range: [+4.5 , +14V]
  - Fully powerable with a +5V signal as an alternative for the COM Express standard (+12V)

- Available as:
  - COM Express type 2 Pluggable profile (2 connectors, COM Express compliant. Can be plugged on standard COM Express carrier boards to use the standard interfaces)
  - COM Express type 2 Plus profile (2 connectors, provides more interfaces than the Pluggable version).
  - COM Express type 2 Enhanced profile (as Plus, but with the third connector used for more specific signal routing)
  - COM Express type 2 SuperEnhanced profile (as Enhanced, but with a more powerful FPGA)





- Static RAM
  - Supervisor with automatic battery switchover to allow reliable battery backup

- EEPROM
  - Programmable I2C address

- SD/MMC
  - Fully compatible with the 3.2 with MMC system specification version and supports up to version 4.0
  - Compatible with high speed MMC card using 1-bit or 4-bit serial interface
  - Compatible with the SDIO standard and SD Physical layer specification with 1 or 4 channels

- CAN
  - Implementation of the CAN protocol version 2.0A/B

Aria Order Codes

Please contact our Sales Department (sales@dave.eu) for available models and prices.

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