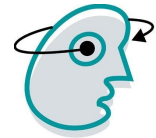
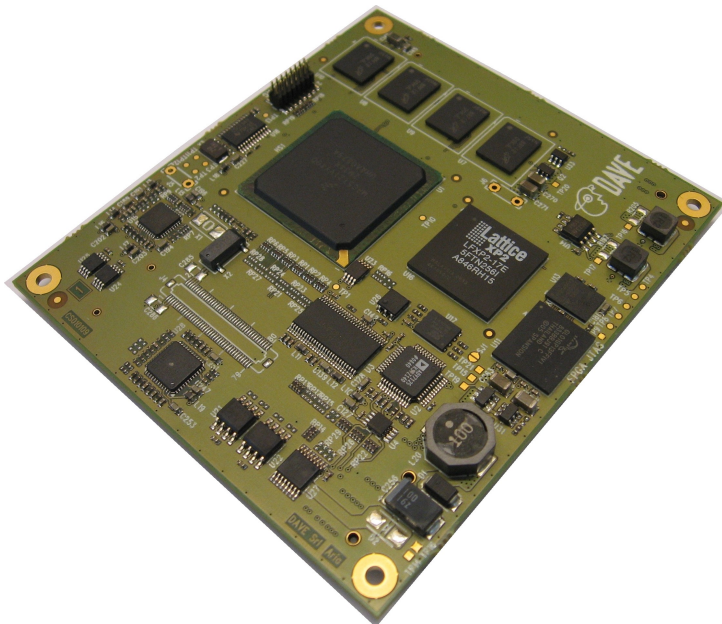


# “ARIA”<sup>®</sup>

## Freescale MPC512x CPU Module



- 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<sup>®</sup> 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 drivers
- COM Express type 2 connectors



**ARIA** is a ready-to-use CPU module based on Freescale MPC512x Power Architecture CPU.

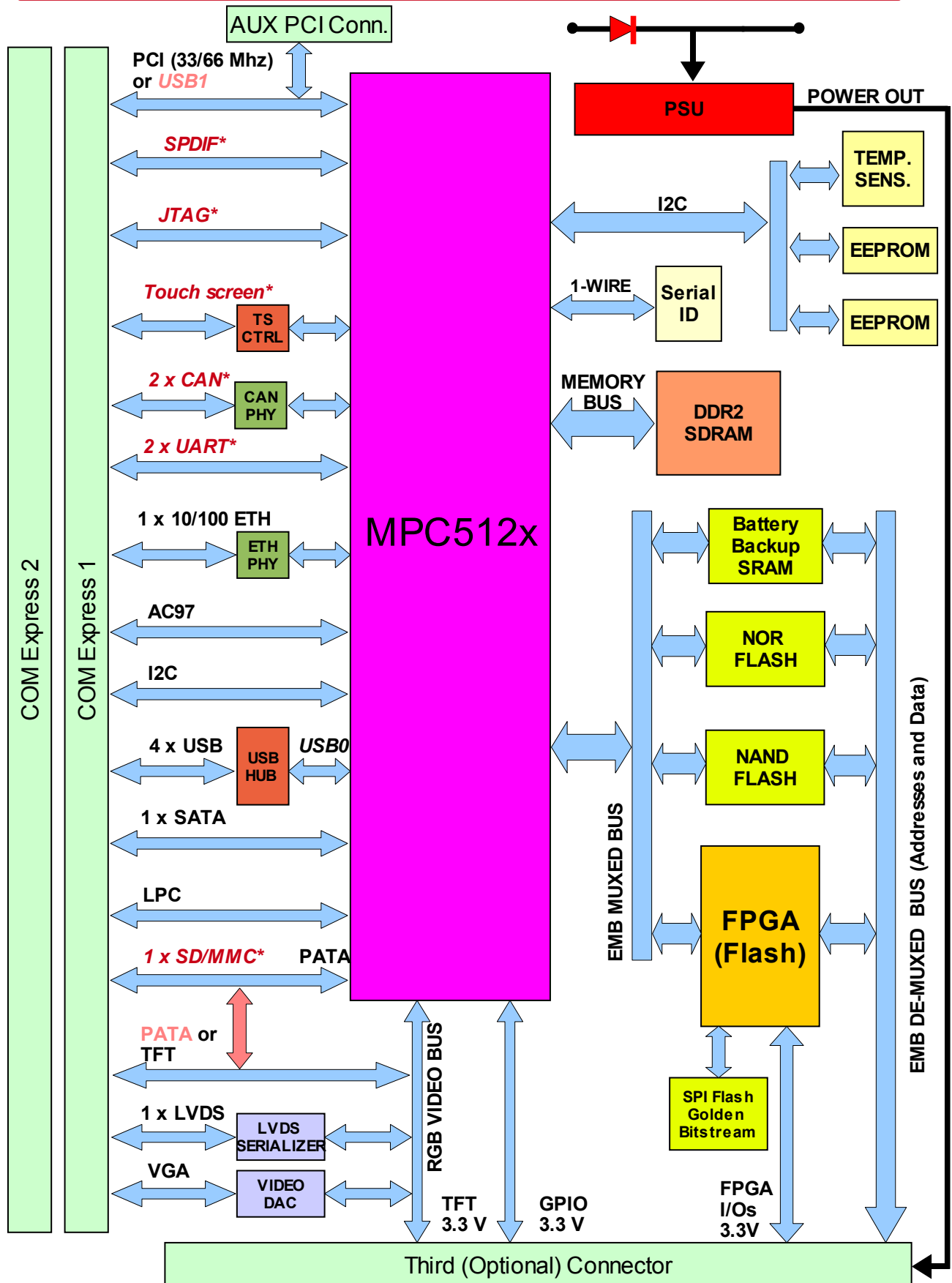
**ARIA** is suitable for single board computing for industrial, automotive and consumer applications, including embedded solutions requiring network connectivity, sophisticated displays, rich user-interfaces (telematics, rear-seat entertainment systems, vehicle connectivity, infotainment, surveillance 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** and **COM Express Plus/Enhanced** versions
- Automotive qualification

\* : Interface available only on COM Express Plus and COM Express Enhanced versions



## **Technical Data**

### **CPU**

Freescale MPC5121e and MPC5123  
e300 Power Architecture core, 90 nm process  
760 MIPS @ 400 MHz

### **Multimedia**

PoverVR 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 GB DDR2  
NOR 8, 16, 32, 128 MB  
NAND All sizes, on request  
SRAM Up to 512 Kbyte, battery backup  
EEPROM 2 x 32 Kbyte (1 COM Express standard EEPROM, 1 user EEPROM)

### **Interfaces**

LAN Fast Ethernet 10/100 Mbps  
UART 2 x UART ports  
USB 4 x 2.0 Host ports  
CAN 2 x ports (2.0 A/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-6 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

### **LCD controller**

Resolution Display Interface Unit supports up to 1280x720  
Type TFT  
LVDS Yes  
VGA Yes  
Touch Screen Yes

### **Mechanical**

Connectors 2 x COM Express type 2  
1 x optional connector (for COM Express Enhanced versions)  
Physical 95 mm x 87 mm  
Temperature Commercial Temperature Range (0°C / +70°C)  
Industrial Temperature Range (-40°C / +85°C)

### **PSU**

Input 4.5V – 14V. Full regulation on-board.  
Consumption TBD

### **Software**

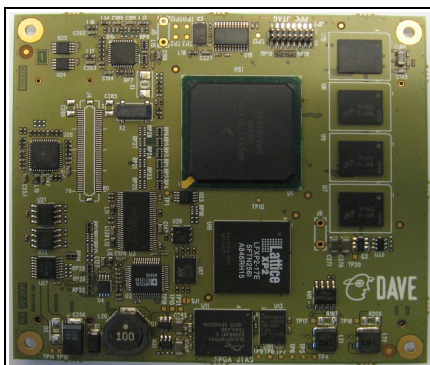
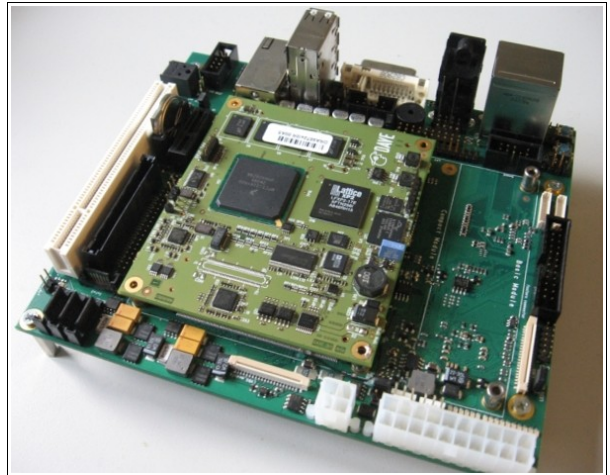
Bootloader U-Boot  
Multitasking OS Linux 2.6.xx

### **Agency approvals**

Pre-compliance TBD

## Key Factors:

- ✓ Power Supply
  - Extended input voltage range: [+4.5V, +14V]
  - Fully powerable with a +5V signal as an alternative for the COM Express standard (+12v)
- ✓ Available as:
  - COM Express type2 **Pluggable** (2 connectors, COM Express compliant. Can be plugged on standard COM Express carrier boards to use the the standard interfaces)
  - COM Express type2 **Plus** (2 connectors, provides more interfaces than the Pluggable version)
  - COM Express type2 **Enhanced** (as Plus version, but with the third connector used for more specific signal routing)
  - COM Express type2 **SuperEnhanced** (as Enhanced version, 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 MMC System Specification version and supports up to version 4.0
  - Compatible with high speed MMC card of with using a 1-bit or 4-bit serial interface
  - Compatible with the SDIO Standard and SD Physical layer specification with 1 or 4 channel
- ✓ CAN
  - Implementation of the CAN protocol version 2.0A/B

## Aria Order Codes

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