EVA-X4300

Embedded 32-bit x86-based SoC with Stacked 256 KB Flash and 10/100 Mbps LAN

Features

- 32-bit 486SX instruction set compatible SoC
- Operating frequency up to 300 MHz
- Supports both SDR and DDR 2 SDRAM
- Integrate most popular interface PCI, ISA, IDE, Ethernet PHY, USB, SPI and LPC on chip
- Supports up to 40-bit GPIO and 5 UART
- Stacked 256KB Flash and 10/100 Mbps Ethernet PHY
- Low power architecture (Fanless, no heatsink required)
- Wide operating temperature
- Guaranteed product longevity

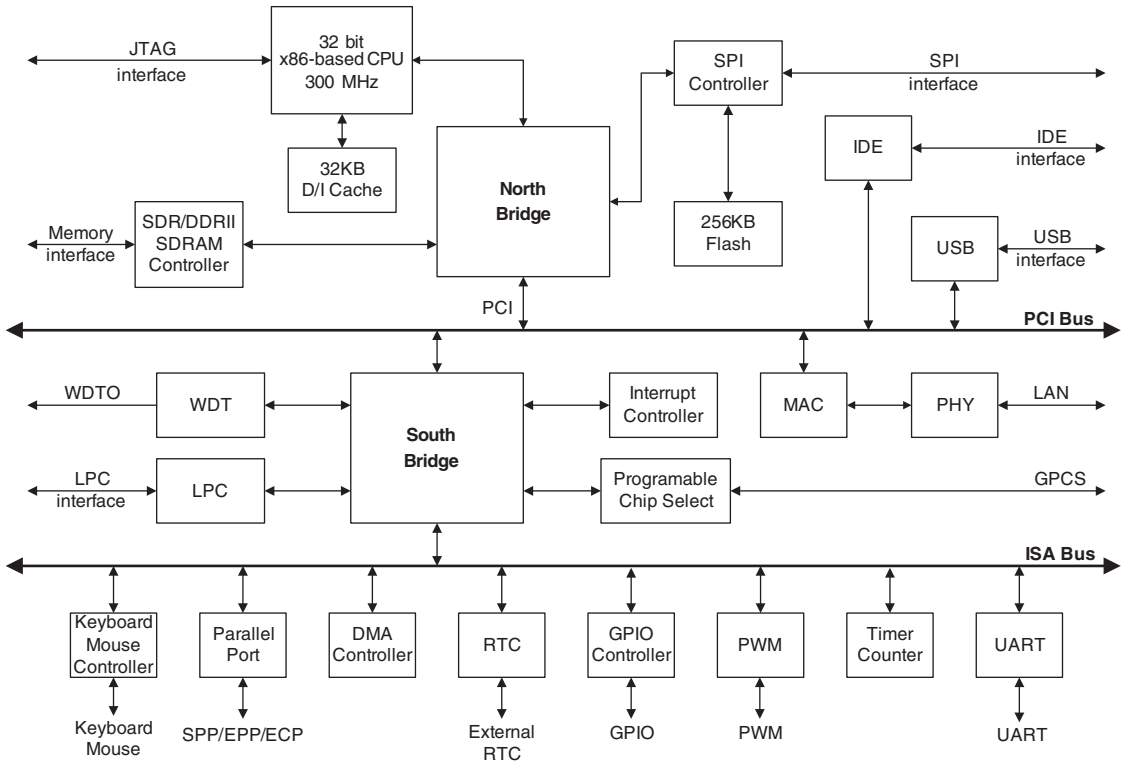
Introduction

EVA-X4300 is a fully static 32-bit x86-based processor that powers a wide-range of PC peripherals, applications and OS, such as DOS, Windows CE, Linux and most popular 32-bit RTOS (Real Time OS) for maximum software re-use and legacy compatibility. EVA-X4300 integrates comprehensive features and rich I/O flexibility within a single System on Chip, to reduce board design complexity and shorten product development schedules. Taking advantage of ultra low power consumption, EVA-X4300 is able to operate in wide temperature range environments without thermal designs, making them the perfect x86-based SOC for diverse embedded applications.

Specifications

- **Processor Core** x86 core, 6 stage pipe-line, 300MHz
- **Embedded L1 Cache** 16 KB I-Cache, 16 KB D-Cache
- **SDR / DDR2 SDRAM Control Interface** 16 bits data bus width
  Supports DLL for clock phase auto-adjustment
  SDR supports up to 133 MHz, 128 MB
  DDR2 supports up to 166 MHz, 256 MB
- **DMA Controller** Provides two 82C37 compatible DMA controllers
  4-channel 8-bit DMA transfer and 3-channel 16-bit DMA transfer
- **Interrupt Controller** Provides two 8259 compatible interrupt controllers
  Independent programmable level/edge-trigger interrupt channels
  Serial IRQ supported
- **Counter / Timer** Two sets of 8254 timer controller
  Supports 2 sets Watch Dog Timer (WDT)
- **General Chip Selector** Two sets extended Chip Selector
  Configurable I/O-map or Memory-map
  I/O Addressing: From 2 byte to 64 KB
  Memory Address: From 512 byte to 4 GB
- **PCI Control Interface** 32 bit, 33 MHz, compliant with PCI spec. Rev. 2.1
  Up to 3 individual PCI master devices
  3.3 V I/O with 5 V tolerance
- **ISA Bus Interface** AT clock programmable
  8/16 bit ISA device with Zero-Wait-State
  Generate refresh signals to ISA interface during DRAM refresh cycle
  Complete IRQ set
- **Ethernet Controller** Integrated 10/100 Mbps Ethernet (MAC + PHY)
  NE2000 Compatible
- **IDE Controller** Supports 2 channels Ultra-DMA 100 (PATA x 4)
- **Universal Serial Bus** USB 2.0 Host controller, supports 4 USB ports
  Supports HS, FS and LS mode
- **LPC (Low Pin Count) Bus Interface** Supports 2 programmable registers to decode LPC address
- **FIFO UART Port** Supports up to 5 COM ports
  Compatible with 16C550/16C552
  Default internal pull-high
  Supports TXD_En signal on COM1 and COM2
  Supports the programmable baud rate generator with the data rate from 50 to 460.8 Kbps
  The character options are programmable for 1 start bits; 1, 1.5 or 2 stop bits; even, odd or no parity; 5~8 data bits
  Port 80h output data could be redirected to COM1
- **General Purpose I/O** Up to 40 GPIO, 8 dedicated and 32 multi-functional programmable I/O pins
  GPIO pins can be individually configured as inputs, outputs, or as interrupt trigger sources
  Open-drain with a pull-high 75 KW
- **SPI Interface** Supports external SPI flash as data storage
- **Real Time Clock** Internal RTC or External RTC
  Under 2 uA power consumption on Internal Mode
- **Parallel Port** Supports SPP / EPP / ECP mode

Block Diagram



Specifications cont.

- **PS/2 Keyboard and Mouse Interface** — Compatible with 8042 controller
- **Stacked 256KB Flash** — Internal SPI interface, for BIOS storage
- **JTAG Interface**
- **Speaker Out** — Buzzer
- **Input Clock** — 14.318 MHz, 32.768 KHz
- **Output Clock** — 24 MHz, 25 MHz, 14.318 MHz
  PCI clock
  ISA clock
  SDRAM clock
- **Operating Voltage Range** — Core Voltage: 1.32 V ± 5 %
  I/O Voltage: 1.8 V ± 5 %, 3.3 V ± 10 %
- **Operating temperature** — -20 °C ~ 85 °C
- **Power Consumption** — Approx. 1.2 Watt
- **Package Type** — PBGA, 581 balls
  Dimension: 27 mm x 27 mm x 2.23 mm
  Lead-free, RoHS compliant

Ordering Information

- **EVA-X4300** — 32-bit x86-based SoC