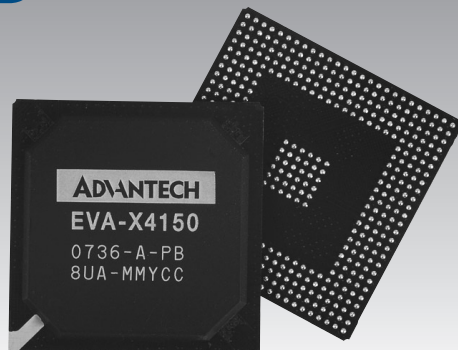


# EVA-X4150

**Embedded 32-bit x86-based SoC  
with built-in PCI, ISA, IDE, Ethernet  
MAC, USB on Chip**

**NEW**



## Features

- 32-bit 486SX instruction set compatible SoC
- Operating frequency up to 150 MHz
- System memory: 32/64/128 MB SDRAM
- Integrated with most popular interfaces: PCI, ISA, IDE, Ethernet MAC, USB, SPI, I<sup>2</sup>C and LPC on chip
- Supports up to 40-bit GPIO and 5 UART
- Supports dual 10/100 Ethernet MACs
- Low power architecture (fanless, no heatsink required)
- Wide operating temperature
- Guaranteed product longevity

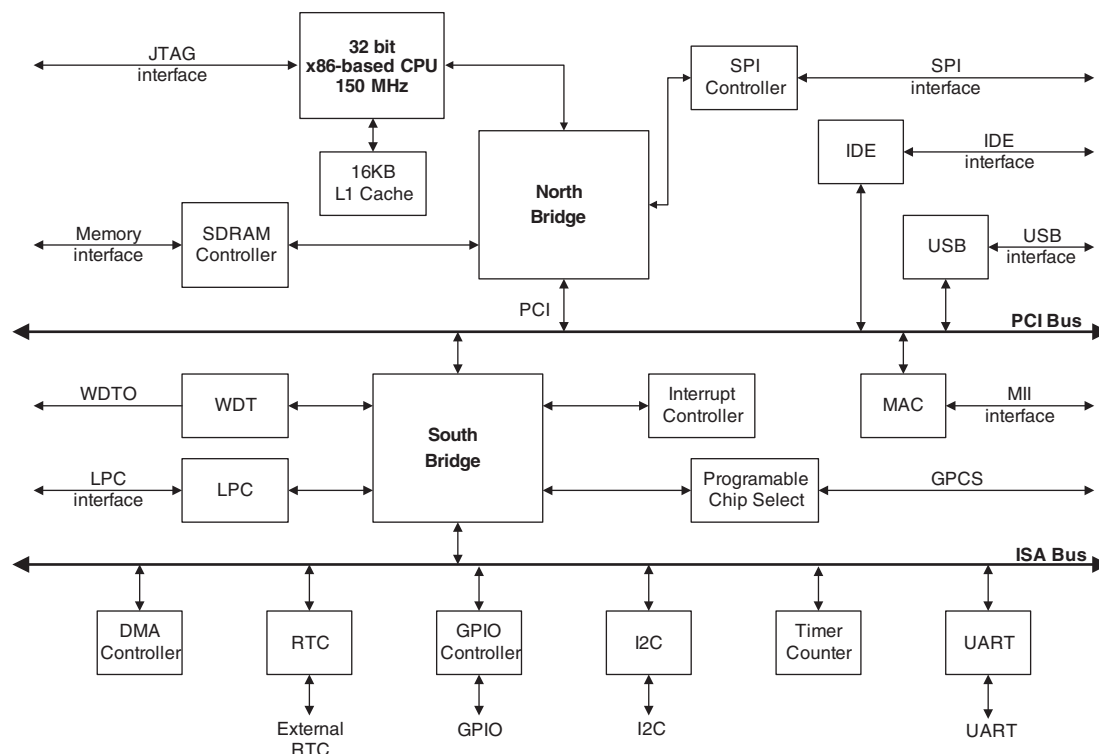
## Introduction

EVA-X4150 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-X4150 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-X4150 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, 150 MHz
- **Embedded L1 Cache** 16 KB L1 cache
- **SDRAM Controller** PC100 / PC133 compliant  
Speeds up to 150 MHz  
8/16 bits data bus width  
Memory space up to 128 MB  
Supports DLL for clock phase auto-adjustment
- **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** One set 8254 compatible timer controller  
Three independent programmable timers / counters  
Supports 1 Watch Dog Timer (WDT)
- **General Chip Selector** Two set 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 16 MB
- **PCI Control Interface** 32 bit, 33 MHz, compliant with PCI spec. Rev. 2.1  
Up to 3 individual PCI master devices  
Up to 133 MB/s maximum bandwidth  
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.  
3.3 V I/O with 5 V tolerance
- **Ethernet Controller** Supports two-port 10/100 Fast Ethernet MAC  
IEEE 802.3u MII interface  
IEEE 802.3x flow control in full-duplex mode  
Descriptor architecture for packet TX/RX
- **IDE Controller** Supports 2 channels Ultra-DMA 100 ( PATA x 4 )
- **Universal Serial Bus** USB 1.1/2.0 Host controller, supports 2 USB ports  
Supports HS, FS and LS mode
- **LPC (Low Pin Count) Bus Interface** Supports 3 programmable registers to decode LPC address
- **FIFO UART Port** Supports up to 5 COM ports  
Compatible with 16C550/16C552  
COM1 and COM2 support programmable TXD\_EN  
Supports 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
- **General Purpose I/O** Up to 40 GPIO, supports 8 dedicated and 32 multi-functional GPIO  
GPIO pins can be individually configured as inputs, outputs, or as interrupt trigger sources  
Open-drain with a pull-high 75 K $\Omega$
- **I<sup>2</sup>C Controller** Compliant with V2.1  
Supports standard, fast and high speed mode  
Configurable for master and slave mode
- **SPI Interface** Supports SPI flash boot
- **Real Time Clock** Internal RTC or External RTC  
Under 2  $\mu$ A power consumption on internal mode
- **JTAG Interface**
- **Speaker Out** Buzzer

## Block Diagram



## Specifications cont.

- **Input Clock** 14.318 MHz, 32.768 KHz
- **Output Clock** 24 MHz, 25 MHz, 14.318 MHz  
PCI clock  
ISA clock  
SDRAM clock
- **Configurable I/O** SDRAM, PCI, ISA, IDE, I2C, GPIO
- **Driving Current**
- **Operating Voltage Range** Core Voltage: 1.8 V  $\pm$  5 %  
Digital I/O Voltage: 3.3 V  $\pm$  10 %  
Analog I/O Voltage: 3.3 V  $\pm$  5 %
- **Operating Temperature** -20° C ~ 85° C
- **Power Consumption** Approx. 0.8 Watt
- **Package Type** PBGA, 456 balls  
Dimension: 27 mm x 27 mm x 2.23 mm  
Lead-free, RoHS compliant

## Ordering Information

- **EVA-X4150** 32-bit x86-based SoC