

EVA-X4150

Cost-Effective x86 SoC for Industrial Embedded Platforms



Features

- 32-bit 486SX instruction set compatible SoC
- Operating frequency up to 150 MHz
- System memory: 32/64/128 MB SDRAM
- Integrated interfaces: PCI, ISA, IDE, Ethernet MAC, USB, SPI, I2C and LPC
- Supports up to 40-bit GPIO and 5 UART port addresses
- Supports dual 10/100 Ethernet MACs
- Low power architecture (fanless, no heatsink required)
- Wide operating temperature (-20° C ~ 85° C)



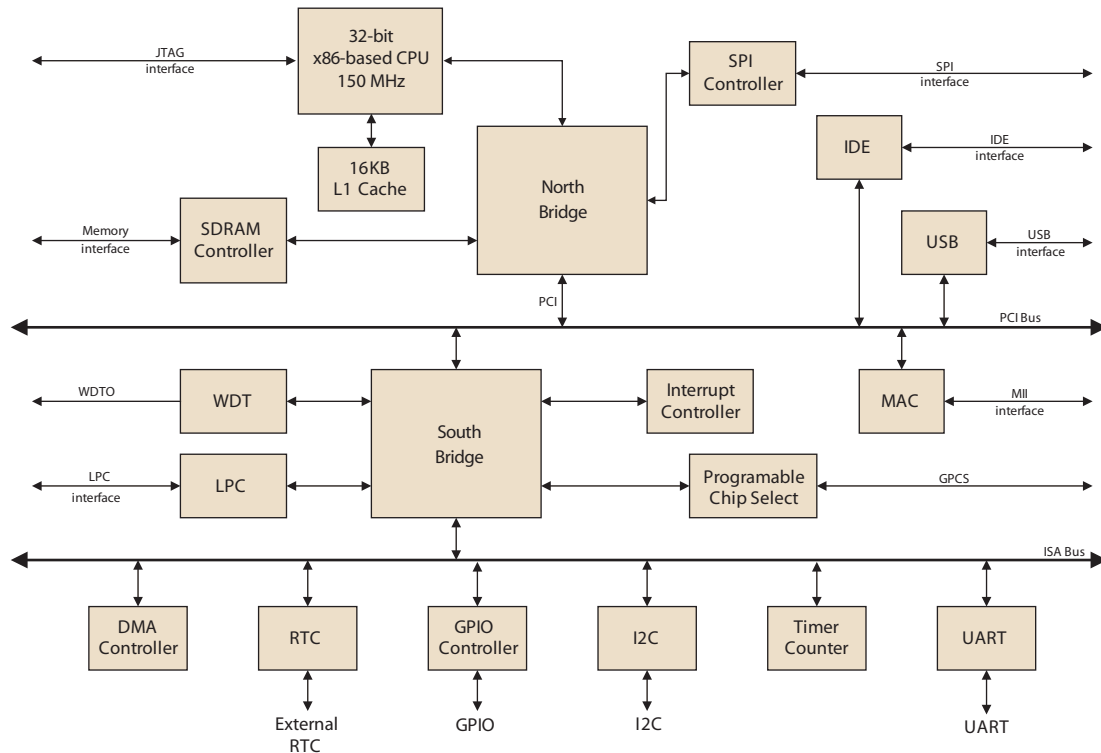
Introduction

EVA-X4150 is a fully static 32-bit x86-based processor that powers a wide-range of PC peripherals, applications and OSs, 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 special thermal design, making it 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-bit 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 4 GB
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 channel 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

Board Diagram



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 Ω
I2C 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 μ A power consumption on internal mode
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
Configurable I/O Driving Current	SDRAM, PCI, ISA, IDE, I2C, GPIO
Operating Voltage Range	Core Voltage: 1.8 V \pm 5 % Analog I/O Voltage: 3.3 V \pm 5 % Digital I/O Voltage: 3.3 V \pm 10 %
Operating Temperature	-20 $^{\circ}$ C ~ 85 $^{\circ}$ C
Power Consumption	Approx. 0.8 Watt
Package Type	PBGA, 456 balls, Lead-free, RoHS compliant Dimensions: 27 mm x 27 mm x 2.23 mm

Ordering Information

Part Number	Description
EVA-X41500A-C00E	EVA-X4150
EVA-X41500A-CB0E	EVA-X4150 bundle with BIOS license

Part Number	Description
EVA-X41500A-V00E	EVA-X4150 bundle with VGA chip
EVA-X41500A-VB0E	EVA-X4150 bundle with VGA chip and BIOS license