Vortex86 SoC Family

32-bit x86 SoC Vortex86DX / Vortex86SX

	Votex86SX	Votex86DX
Frequency	300MHz	600MHz
FPU	N/A	Yes
L1 Cache	16KB I-Cache 16KB D-Cache	16KB I-Cache 16KB D-Cache
L2 Cache	N/A	256KB
BIOS Flash	256KB	2MB
DRAM Bus	16-bit . DDR2-512MB max.	16-bit . DDR2-1GB max.
WatchDog	2	2
PCI Bus	Yes	Yes
ISABus	Yes	Yes
LPC Bus	Yes	Yes
USB 2.0	Host x 4	Host x4, Client x 1
Serial Port	5 max.	5 max.
GPIO Port	40 bits max.	40 bits max.
LAN MAC+PHY	1	1
IDE	2 channels	2 channels 1 channel + SD
Parallel Port	1	1
PWM	3	32
I²C	N/A	2
PS/2 Keyboard Ctrler	Yes	Yes
Power Input	Vcore 1.3V I/O 1.8V ,3.3V	Vcore 1.0V I/O 1.8V ,3.3V
Package Size	27 x 27 mm	27 x 27 mm
Package Type	581 pins Ball BGA	581 pins Ball BGA

Evaluation Board

The VDX-6190 /VSX-6190S are the turnkey solution that integrate the Vortex86DX/SX, GPU and DDR2 Memory. Users can easily verify the performance of Vortex86DX/SX processor and it's build-in rich I/O functions like LAN, USB , RS232,GPIO, PS/2, Printer, IDE, WDT, ISA and PCI interface.

Together with a IDE Flash Disk which pre-installed the mainstream operating systems, users can test the Vortex86SX right away without the vexing software installation.

SoC	EVB Part No
Vortex86SX	VSX-6190S
Vortex86DX	VDX-6190

DMP

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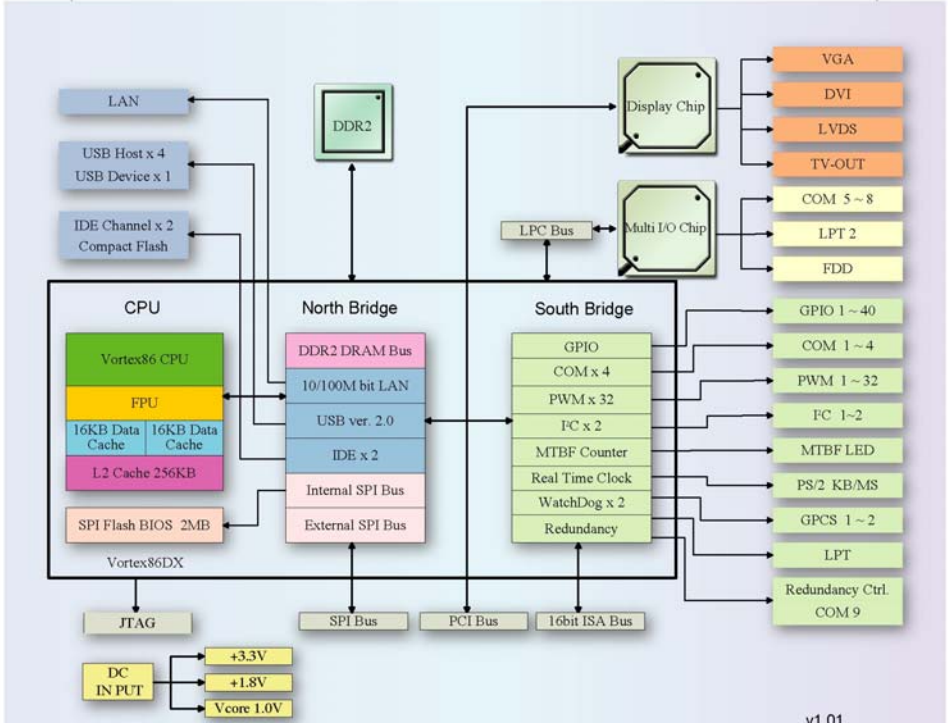
The Vortex86DX/SX System-on-Chip was originally designed, with Long-Product-Life-Cycle support, to provide a product migration path to the existing user of the DMP M6117D chip, a 40 MHz 386SX System-on-Chip introduced to the market in the early 1990's, reaching end-of-life in 2007.

The Vortex86DX/SX is a 32-bit x86 System-on-Chip (SoC), built with 90 nano (DX) / 0.13 micron (SX) process and ultra low power consumption design (less than 1 watt). The Vortex86DX/SX SoC integrated many of the common computing I/O and peripherals into a single chip design, a 27 mm x 27 mm 581-pin BGA package.

The Vortex86SX SoC supports Windows Embedded , Linux, DOS, and other Operating Systems. The SoC design integrates 256KB (DX) / 32KB (SX) write through direct map L2/ L1 cache, native 16-bit ISA bus, PCI Rev. 2.1 32-bit bus interface at 33 MHz, DDR2, ROM controller, IPC (Internal Peripheral Controllers with DMA and interrupt timer/counter included), SPI (Serial Peripheral Interface), Fast Ethernet MAC, FIFO UART, USB2.0 Host, IDE controller, and more into a System-on-Chip (SoC) design.

With its core design based on the matured x86 CPU architecture and rich set of integrated I/O peripherals and designed to function in harsh temperature ranges of -45°C to +85°C, The Vortex86DX/SX SoC provides the ideal hardware platform to design new generations of Industrial Single Board Computers and embedded controllers to build Automation Control, Medical, Automotive, Utility Metering, Firewall Router, Security Access, Thin Client, Intelligent RFID reader, RS-232 to TCP protocol converter, Home and Building Automation, and other devices.

Vortex86DX SoC Block Diagram



Easy Development, Maintenance & Production.

Easy Development for your R&D Dep.

- All-in-one x86 Artechture
- Open Schematic, Layout & Gerber
- Build-in BIOS
- Low Power consumption at 1 Watt
- Able to design in a 4 layers PCB.

Easy Production for your Manufacturing Dep.

- 581-pin BGA Package, 1 mm ball pitch
- On-site JTAG debug tool
- ISOinCHIP for production tracking

Easy Maintenance for your Purchasing Dep.

- 10 Years Life-Cycle Support
- Relativity low BOM cost
- Relativity low BOM items.
- Same PCB for both Vortex86DX/SX SoC

MTBF Flag Counter

One-time writable flash area for MTBF hours, count down by each power-on or working hours. When the counter reach to 0, the built-in TTL alert signal will be enabled automatically.

IDE to SD

Build-in simulation circuit to adapt SD to IDE, allowing your system taking SD simply as a C: or D: drive.

PWM

The 32 channels of PWM - Servo Controller Interface enabling Automation / Robotic industry to a friendly x86 platform.

Wide Temperature

-40 °C to +85 °C wide operating temperature supports for military, industrial application.