

ETX Modules

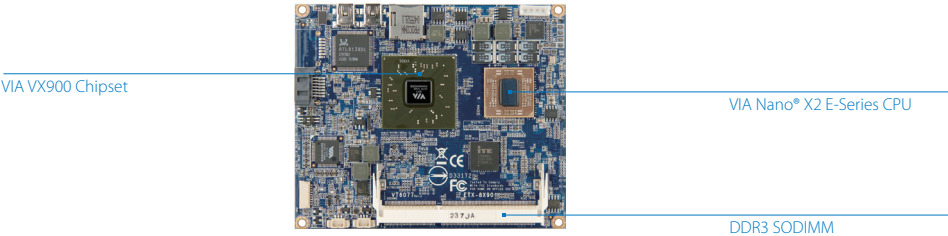
VIA  
ETX-8X90

ETX® Module with high-performance multimedia capabilities

Features

- 1.2GHz VIA Nano® X2 E-Series processor
- Supports up to 4GB 1066 DDR3 SDRAM
- DX9 graphics with MPEG-2/WMV9/VC1/H.264 decoding acceleration
- Display interface for VGA, supporting resolutions of up to 2048 x 1536, and one 18/24-bit dual-channel LVDS panel
- Supports four USB 2.0 and two mini USB ports

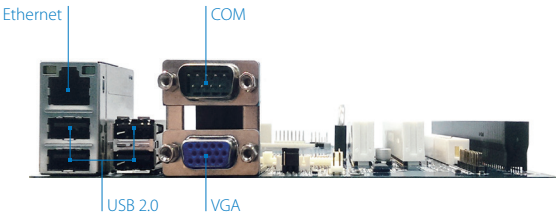
Board Placement



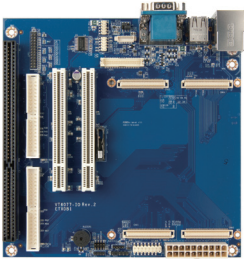
Specifications

|                                |                                                                                                                                                                                        |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Model Name                     | ETX-8X90                                                                                                                                                                               |
| Processor                      | 1.2GHz VIA Nano® X2 E-Series                                                                                                                                                           |
| Chipset                        | VIA VX900 Media System Processor                                                                                                                                                       |
| BIOS                           | AMI BIOS, 8Mbit Flash memory                                                                                                                                                           |
| System Memory                  | 1 DDR3 1066 SODIMM slot<br>Up to 4GB memory size                                                                                                                                       |
| Storage                        | Up to 2 SATA or 2 EIDE (master mode only)                                                                                                                                              |
| Graphics                       | Integrated VIA Chrome®9 HD DX9 3D/2D graphics with MPEG-2, WMV9, VC1 and H.264 video decoding acceleration                                                                             |
| LAN                            | Realtek RTL8139DL 10/100M Ethernet controller                                                                                                                                          |
| Audio                          | 1 HD audio digital interface                                                                                                                                                           |
| Super I/O                      | Fintek F71869ED                                                                                                                                                                        |
| Supported Expansion I/O        | 2 PCI                                                                                                                                                                                  |
| Left Panel I/O                 | 2 SATA connectors (1 optional)<br>2 Mini USB 2.0<br>1 Micro SD card slot<br>1 Audio pin header for Line-in, Line-out, Mic-in                                                           |
| Supported I/O                  | 4 USB 2.0 ports<br>1 VGA<br>1 Dual-channel 18-bit/24-bit LVDS panel<br>2 COM<br>1 10/100M Ethernet<br>2 IDE (master mode only)<br>1 SMBus<br>1 I²C<br>1 ISA (not support DMA transfer) |
| Operating System               | Windows 7, WES 7, Windows CE, Linux                                                                                                                                                    |
| System Monitoring & Management | CPU temperature reading, CPU fan speed reading, System voltage monitoring, Watch Dog Timer, Wake-on-LAN, System power management, AC power failure recovery                            |
| Operating Temperature          | 0°C ~ 60°C                                                                                                                                                                             |
| Operating Humidity             | 0% ~ 95% (non-condensing)                                                                                                                                                              |
| Form Factor                    | 11.4cm x 9.5cm (4.45" x 3.7")                                                                                                                                                          |
| Compliance                     | ETX 3.02, compact module                                                                                                                                                               |

Carrier Board Back Panel I/O



Carrier Board (ETXDB1)



\* The carrier board is only for evaluation purpose.

Specifications

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Model Name            | ETXDB1                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Super I/O             | Fintek F71869ED                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Onboard I/O           | 1 ISA connector (compatible with ISA ETX 3.0)<br>2 EIDE connectors (master mode only)<br>1 COM port pin headers<br>1 LPT connector<br>1 Dual-channel 18/24-bit LVDS panel connector<br>1 Audio pin header for Line-out, Mic-in<br>1 SMBus pin header<br>1 I <sup>2</sup> C pin header<br>1 Backlight voltage selects pin header<br>1 SIR pin header<br>1 RTC external battery holder<br>1 ATX power connector<br>2 PCI slots (compatible with PCI 2.3, 32bit/33Mhz) |
| Rear Panel I/O        | 4 USB 2.0 ports<br>1 VGA port<br>1 COM port<br>1 10/100Mbps Ethernet connector                                                                                                                                                                                                                                                                                                                                                                                      |
| Power Supply          | ATX power connector                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Operating Temperature | 0°C ~ 60°C                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Operating Humidity    | 0% ~ 95% (non-condensing)                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Form Factor           | Mini-ITX (17cm x 17cm, 6.7" x 6.7")                                                                                                                                                                                                                                                                                                                                                                                                                                 |

Ordering Information

| Model Name     | CPU Frequency                | Description                                                                                                                                                                      |
|----------------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ETX-8X90       | 1.2GHz VIA Nano® X2 E-Series | ETX Board with 1.2GHz VIA Nano® X2 E-Series CPU with VGA, LVDS, 4 USB 2.0, 2 Mini USB 2.0, COM, 10/100Mbps Ethernet, SATA, 2 IDE, 2 PCI, Micro SD card slot, ATX power connector |
| ETXDB1         | N/A                          | ETX-8X90 evaluation carrier board                                                                                                                                                |
| 99G42-01381Q   | N/A                          | Heatsink with fan for ETX-8X90                                                                                                                                                   |
| 99G42-01413Q   | N/A                          | Heat spreader for ETX-8X90                                                                                                                                                       |
| STK-E8X90-00A0 | 1.2GHz VIA Nano® X2 E-Series | ETX-8X90 starter kit                                                                                                                                                             |
| STK-E8X90-01A0 | 1.2GHz VIA Nano® X2 E-Series | ETX-8X90 starter kit with Panel                                                                                                                                                  |

The diagram illustrates the system architecture for the VIA Nano X2 E 1.2GHz. At the center is the **VIA Nano® X2 E 1.2GHz** processor, which is connected to various components:

- Power and I/O (Top):** LPC CONN, DC-in CONN (+5VSB), SPI CONN, VGA CONN, SATA PWR CONN, and SATA CONN are connected to the system. A **Clock Generator IC59UM709B** provides  $\pm 1\%$  CPU CLK and  $\pm 1\%$  HCLK signals.
- Memory (Right):** The system includes **DDR3 SDRAM Slot SODIMM x1** and **DDR3 800-1066MHz** memory modules.
- Storage and Expansion (Bottom):** SATA Gen2 controllers for **SATA1** and **SATA2** are connected. A **Super IO F71869ED** manages **+5V CPU FAN** and **+5V System FAN**. A **HD Codec VT2021** handles audio and line-in/out signals.
- Connectivity (Left):**
  - X4:** IDE, Ethernet, PWRGD, +5VSB, Reset, ATX CTL, Speaker, PWR BN, RTC, SM Bus, and I2C Bus.
  - X3:** VGA, LVDS, UART, PS2, SIR, LPT, and I2C Bus.
  - X2:** ISA Bus.
  - X1:** PCI Bus, USB, Audio, SIR, Ext 3.3V (500mA), and Line-out/Line-in/Mic-in.
- Internal Components:**
  - VX900:** The main system controller/chip.
  - 10/100 LAN RTL8139DL** and **PCIe to SATA JMD330** are connected to the **Ext PCI x1** port.
  - System BIOS, SPI ROM, Micro SD, and Mini USB x2** are connected to the **SM Bus, SPI Bus, and USB x2** ports.
  - LVDS Transmitter V1636** is connected to the **DVP** port.
  - PCI to ISA Bridge IT888BG** and **Ext PCI Arbitrator IT8209R-L** manage the **PCI M1, PCI M2, and Ext PCI x1** ports.
  - Serial IRQ, USB x4, and HDA (Azalia)** are connected to the **Serial IRQ, USB x4, and HDA (Azalia)** ports.

| Items for STK-E8X90-00A0  |
|---------------------------|
| ETX-8X90 ETX module board |
| ETXDB1 ETX carrier board  |
| SATA cable                |
| PATA cable                |
| KB/MS cable               |
| COM cable                 |
| LPT cable                 |

|                      |
|----------------------|
| ETX-8X90 module      |
| ETXDB1 carrier board |
| SATA cable           |
| PATA cable           |
| KB/MS cable          |
| COM cable            |
| LPT cable            |
| LVDS cable           |
| Inverter cable       |
| 12.1" LCM            |