VIA ETX-8X90 Computer-On-Module *and* ETXDB1 Carrier Board Reference

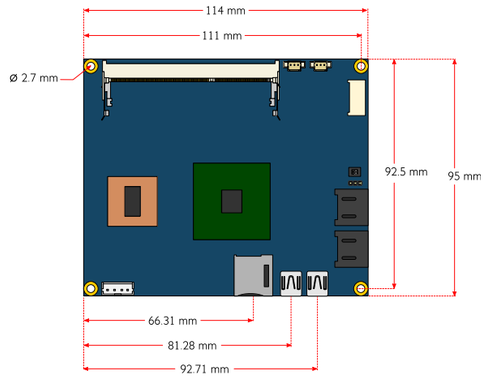
Quick Guide

Key Features:

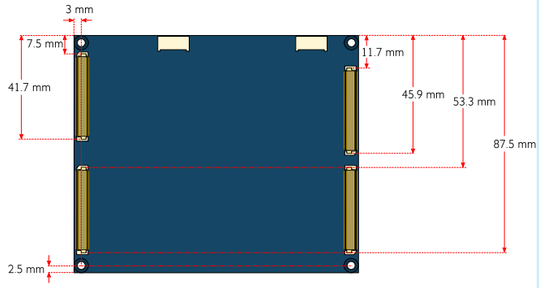
- 1.2GHz VIA Nano® X2 E-Series processor
- DDR3 800/1066 SODIMM memory
- Integrated VIA C-9 HD DX9 3D/2D graphics processor
- Display interface in CRT, 18/24-bit dual-channel LVDS panel
- Supports standard and mini USB 2.0 ports
- Supports Micro SD card slot

VIA ETX-8X90 Module Dimensions

Top View



Bottom View



VIA ETX-8X90 Module Specifications

Core

Processor	▪ 1.2GHz VIA Nano® X2 E-Series
Chipset	▪ VIA VX900 MSP
System Memory	▪ 1 x DDR3 800/1066 SODIMM slot ▪ Up to 4GB memory size
BIOS	▪ AMI BIOS ▪ 8Mbit SPI flash memory
Operating System	▪ Microsoft Windows 7 ▪ Microsoft Windows Xpe ▪ Microsoft Windows Embedded System System 7 ▪ Microsoft Windows CE 6.0 ▪ Linux (Debian, Ubuntu) ▪ VXWorks 6.9

Graphics and Video

Graphics processor	▪ Integrated VIA C-9 HD DX9 3D/2D graphics with MPEG-2,WMV9, VC-1, and H.264 video decoding accelerator
Graphics memory	▪ UMA, up to 512MB (BIOS setting)
CRT Interface	▪ 350MHz RAMDAC ▪ Supports up to 2048x1536 resolution
LCD Interface	▪ Supports dual-channel 18/24 bit LVDS panel

Ethernet

Chipset	▪ Realtek RTL8139DL Ethernet controller

Storage

Micro SD card	▪ Supports Micro SD card slot (supports OS boot on Linux Windows CE and VxWorks)
Hard disk	▪ Supports two SATA 3.0Gbps connectors (SATA1 and SATA2 on module) ▪ Supports two IDE connectors (IDE1 and IDE2 on carrier board)

Note:
The VIA ETX-8X90 only supports two channel of storage. The IDE1 + SATA2 configuration is the default setting. The other configurations such as IDE1 + IDE2 (option 1) or SATA1 + SATA2 (option 2) are manufacturing options. For more details, please contact your local sales representative.

Input/Output

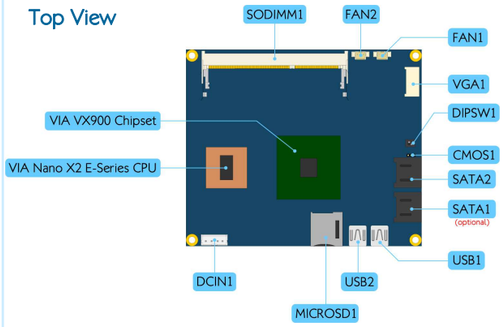
Audio	▪ VT2021 Audio Codec
LAN	▪ 10/100Mbps Ethernet (RTL8139DL)
USB	▪ Supports up to four USB 2.0 ports (on carrier board) ▪ Supports two mini USB 2.0 ports (on module)
LPT	▪ Supports one LPT port
COM	▪ Supports two UARTs ports
Super IO	▪ Fintek F71869ED
IrDA	▪ Supports SIR
Keyboard/Mouse	▪ Supports PS/2 keyboard and mouse
Expansion Buses	▪ Supports SMBus interface ▪ Supports I²C bus ▪ Supports PCI 2.3, 32 bit/33MHz, 2 slots ▪ Supports ISA bus (ETX 3.0 compliant) (DMA transfer not supported)
Switch and Jumper	▪ DIP switch (HDD selector switch) ▪ Clear CMOS jumper

Mechanical and Environment

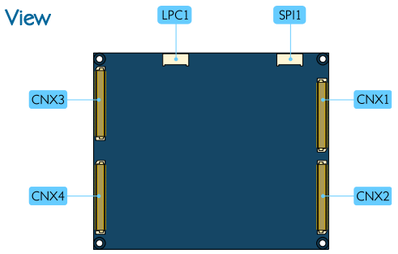
Compliance	▪ CE, FCC and RoHS
ETX Compliance	▪ ETX 3.02, compact module
Dimensions	▪ 114mm x 95mm (4.45" x 3.7")
Storage Temperature	▪ -40°C ~ 70°C
Operating Temperature	▪ 0°C up ~ 60°C
Operating Humidity	▪ 0% ~ 95% (relative humidity; non-condensing)

VIA ETX-8X90 Module Layout Diagram

Top View



Bottom View



Notes:

1. As default, SATA2 connector is enabled and SATA1 connector is disabled. The SATA1 connector is a manufacturing option.
2. The SATA connector pin 7 default setting is GND. The +5V supports is a factory option
3. DCIN1, VGA1, LPC1 and SPI1 connectors are reserved for debugging purposes only, and not for production used.

ETXDB1 Carrier Board Specifications

Model Name

- ETXDB1

Rear I/O Connectors

- 1 x VGA port
- 1 x COM port
- 4 x USB 2.0 ports
- 1 x 10/100Mbps Ethernet port

Onboard Connectors and Slots

- 4 x ETX connectors
- 1 x ISA slot (compatible with ISA ETX 3.02)
- 2 x IDE connectors
- 2 x PCI slots (compatible with PCI 2.3, 32bit/33MHz)
- 1 x LVDS connector (compatible with TIA/ELA-644)
  - Pixel clock up to 85MHz
  - Supports panel resolution up to WXGA 1366x768
  - Supports one or two-channel 18-bit/24-bit LVDS panel
- 1 x Backlight connector
- 1 x ATX power connector
- 1 x RTC battery slot

Onboard Pin Headers

- 1 x LPT pin header
- 1 x Keyboard & Mouse pin header
- 1 x COM pin header
- 1 x Front Panel pin header (for HDD LED, Power LED, Switch and Speaker
- 1 x Front Audio pin header
- 1 x SMBus pin header
- 1 x I²C pin header
- 1 x SIR pin header

Onboard Jumpers

- 1 x Backlight and Panel power jumper

Onboard Speaker

- 1 x Buzzer speaker

Form Factor and Dimension

- Mini-ITX
- 6 layers
- 17cm x 17cm (6.7" x 6.7")

Operating Temperature

- 0°C ~ 60°C

Operating and Storage Humidity

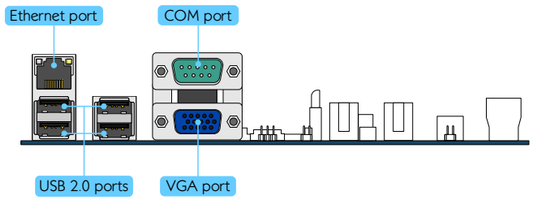
- 95% relative humidity

Board Storage Channel Configuration

	ETXDB1 (Carrier Board)		VIA ETX-8X90 (Computer-On-Module)	
	IDE1	**IDE2**	**SATA1**	**SATA2**
Default settings	Enable	Disable	Disable	Enable
Manufacturing option 1	Enable	Enable	Disable	Disable
Manufacturing option 2	Disable	Disable	Enable	Enable

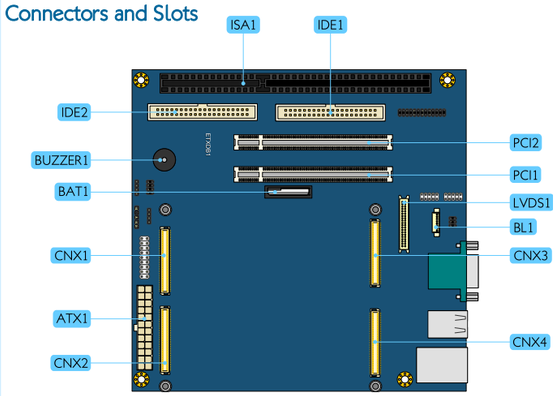
ETXDB1 Carrier board External I/O Connectors

Rear Panel I/O

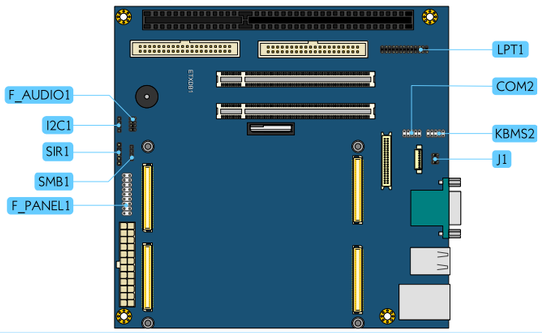


ETXDB1 Carrier Board Layout Diagram

Connectors and Slots



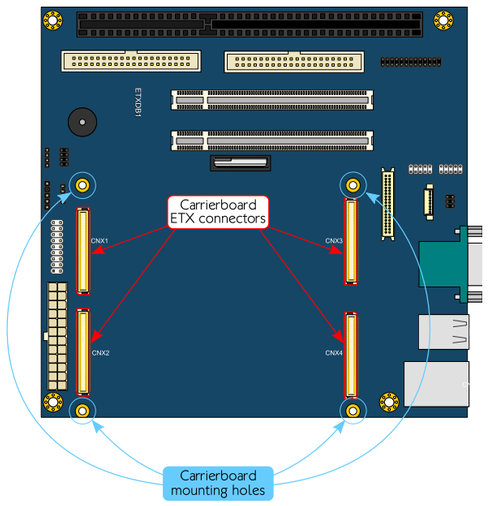
Pin headers and Jumpers



1 Mounting VIA ETX-8X90 onto the ETXDB1 carrier board

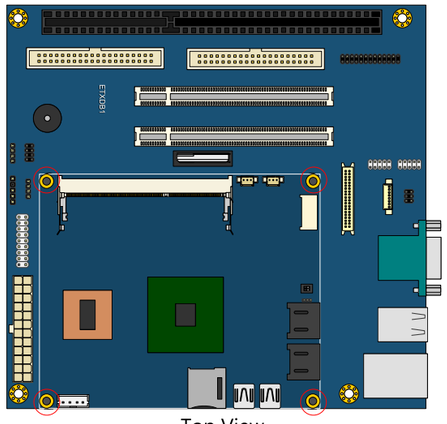
Step 1

Align the four ETX connectors and mounting hole of the VIA ETX-8X90 module into the ETX connectors and mounting holes on the ETXDB1 carrier board.

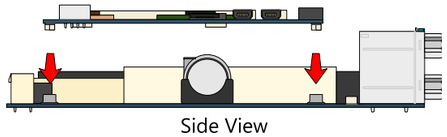


Step 2

Gently press down the VIA ETX-8X90 module until the four ETX connectors have been fully inserted into the ETX connectors on the ETXDB1 carrier board.



Top View



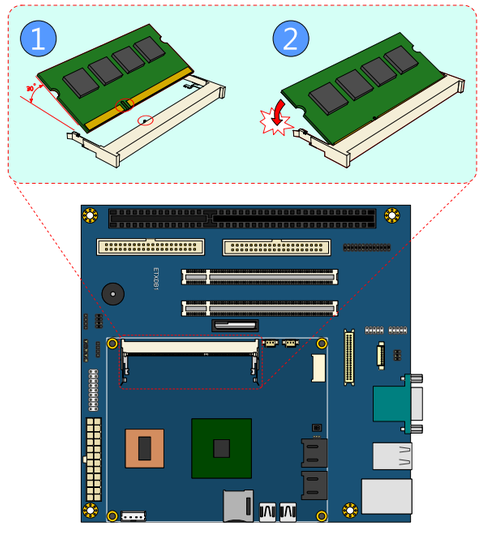
Side View

Step 3

Align the notch on the memory module with its counterpart on the SODIMM slot, and then insert the memory module at a 30° angle.

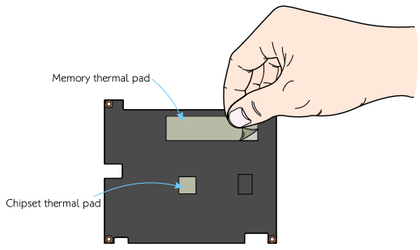
Step 4

Push down until the memory module snaps into place. The memory slot has two locking mechanisms that will click once the memory module has been fully inserted.



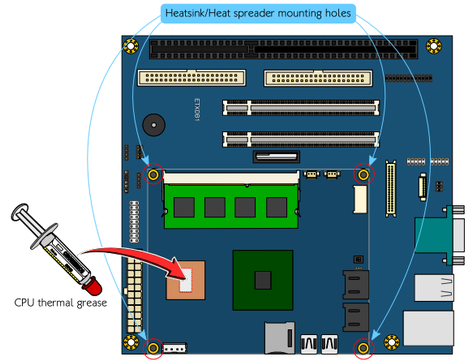
Step 5

Flip over the heatsink/heat spreader. Remove the plastic cover of the thermal pad of the memory and chipset.



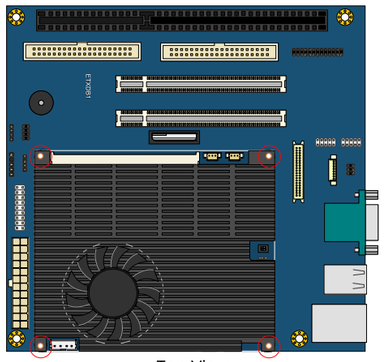
Step 6

Apply the thermal grease/paste onto the surface of the CPU. Then align the heatsink/heat spreader over the mounting holes on the VIA ETX-8X90 module.

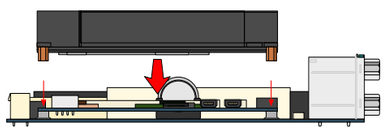


Step 7

Gently install the heatsink/heat spreader. Make sure to install it in proper orientation. The thermal pads underneath the heatsink/heat spreader should position above the memory and chipset respectively.



Top View



Side View

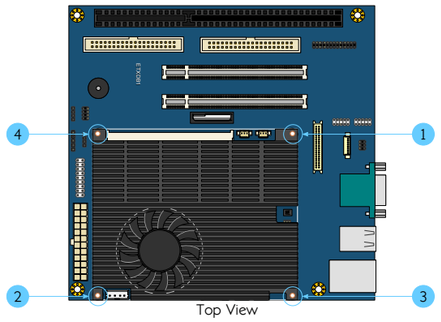
Step 8

Connect the CPU fan jack to the fan connector (FAN1).

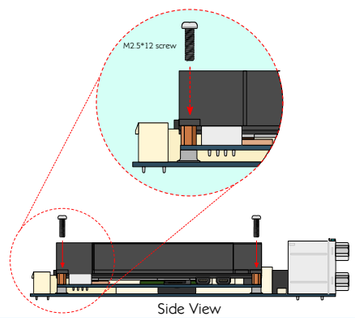
Step 9

Secure the VIA ETX-8X90 module with the heatsink/heat spreader by screwing and tightening four M2.5*12 screws in sequence (torque is 2.5~2.6 kgfcm).

Note:
Be sure to follow the sequence shown below when tightening the screws, otherwise it may cause damage to the device.



Top View



Side View

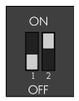
VIA ETX-8X90 Module Switch & Jumper

Clear CMOS Jumper

CMOS1

Clear CMOS setting	Pin 1	Pin 2	Pin 3
Normal Operation (default)	Short	Short	Open
Clear CMOS	Open	Short	Short

HDD Selector Switch



DIPSW1

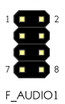
IDE1 + SATA2 HDD setting	Switch 1	Switch 2
IDE1 HDD not install	On	N/A
IDE1 HDD install	Off	N/A

IDE1 + IDE2 HDD setting	Switch 1	Switch 2
IDE1 and IDE2 HDD not install	On	On
IDE1 HDD not install and IDE2 HDD install	On	Off
IDE1 HDD install and IDE2 HDD not install	Off	On
IDE1 and IDE2 HDD install	Off	Off

Notes:
1. The IDE1 + SATA2 configuration is the default setting.
2. The IDE1 + IDE2 (option 1) or SATA1 + SATA2 (option 2) configurations are manufacturing options.
3. The HDD Selector Switch (DIPSW1) is not applicable to SATA HDD configuration.

ETXDB1 Carrier board Pin headers Definition and Jumpers Settings

Front Audio Pin Header



F_AUDIO1

Pin	Signal	Pin	Signal
1	AUXAR	2	AGND
3	AUXAL	4	MICIN
5	SNDR	6	NC
7	SNDL	8	AGND

Serial Infrared Pin Header

SIR1

Pin	Signal
1	+5V
2	Key
3	IRRX
4	GND
5	IRTX

I²C Pin Header

I2C1

Pin	Signal
1	+5V /+3V (optional)
2	CLK
3	DAT
4	GND

SMBus Pin Header

SMB1

Pin	Signal
1	+3V
2	CLK
3	DAT
4	GND

Front Panel Pin Header

F_PANEL1

Pin	Signal	Pin	Signal
1	Power LED+	2	+5V
3	Power LED+	4	HDD LED-
5	Power LED-	6	Power button
7	+5V	8	GND
9	NC	10	Reset
11	NC	12	GND
13	Speaker-	14	+5V
15	Key	16	NC

LPT Pin Header

LPT1

Pin	Signal	Pin	Signal
1	-STB	2	-AFD
3	D0	4	-ERR
5	D1	6	-INIT
7	D2	8	-SLIN
9	D3	10	GND
11	D4	12	GND
13	D5	14	GND
15	D6	16	GND
17	D7	18	GND
19	-ACK	20	GND
21	BUSY	22	GND
23	PE	24	GND
25	SCLT	26	Key

Keyboard & Mouse Pin Header

KBMS1

Pin	Signal	Pin	Signal
1	+5VSUS	2	+5VSUS
3	NC	4	Key
5	GND	6	GND
7	KB_DT	8	MS_DT
9	KB_CK	10	MS_CK

COM Pin Header

COM2

Pin	Signal	Pin	Signal
1	DCD2-	2	RXD2-
3	TXD2-	4	DTR2-
5	GND	6	DSR2-
7	RTS2	8	CTS2
9	RI2	10	Key

Backlight and Panel Power Jumper

J1

Backlight voltage setting	Pin 1	Pin 3	Pin 5
+12V	Short	Short	Open
+5V	Open	Short	Short

Panel voltage setting	Pin 2	Pin 4	Pin 6
+3.3V	Short	Short	Open
+5V	Open	Short	Short

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