COMe-8X92 COM Express Module and COMEDB2 Carrier Board Reference

Quick Guide

Key Features:

- 1.2GHz VIA Nano® X2 E-Series processor
- Supports up to 4GB 1066 DDR3 SDRAM
- DX9 3D/2D graphics with MPEG-2, WMV9, VC1 and H.264 decoding acceleration
- Display interface for VGA, 18/24-bit single-channel LVDS panel, one DisplayPort and one HDMI® port
- Supports four USB 3.0 and four USB 2.0 ports

COMe-8X92 Module Specifications

Core

Processor	▪ 1.2GHz VIA Nano® X2 E-Series ▪ 1.0GHz VIA QuadCore E-Series (manufacturing option)
Chipset	▪ VIA VX900 all-in one system processor
System Memory	▪ 1 x DDR3 1066 SODIMM slot ▪ Supports up to 4GB memory size
BIOS	▪ AMI BIOS ▪ 4/8Mbit SPI flash memory
Operating System	▪ Windows 7 ▪ Windows Embedded System 7 ▪ Windows CE 6.0 ▪ Linux ▪ QNX Neutrino ▪ VXWorks 6.9
Hardware Monitoring	▪ CPU temperature reading ▪ CPU fan speed reading ▪ System voltage monitoring
Watchdog Timer	▪ Software Programmable
Expansion Bus	▪ 1 x PCIe Gen2 x4 ▪ 1 x PCIe Gen2 x1

Video

VGA	▪ Integrated VIA C-9 HD DX9 3D/2D graphics processor and unified video decoding accelerator
CRT Interface	▪ 1 x VGA port supports up to 2560x1600 resolution
LVDS Interface	▪ 1 x LVDS channel supports single-channel 8-bit or 24-bit LVDS panel
HDMI® Interface	▪ 1 x HDMI® port
DisplayPort Interface	▪ 1 x DisplayPort
Expansion Bus	▪ 1 x Digital Video Output port for external HDMI®/LVDS/DVI transmitter or TV encoder

Ethernet

Chipset	▪ VIA VT6130 Gigabit Ethernet controller

Input/Output

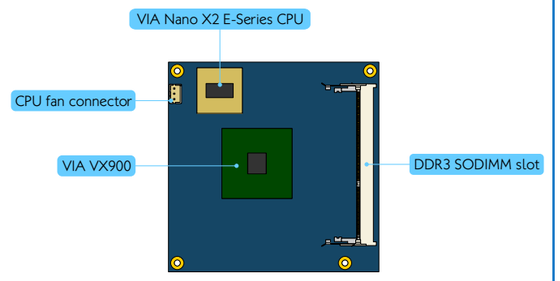
Audio	▪ 1 x HD audio digital interface
LAN	▪ 1 x Gigabit Ethernet port
USB	▪ 4 x USB 3.0 ports by (VLI VL800 controller) ▪ 4 x USB 2.0 ports
SATA	▪ 2 x SATA 3.0 Gbps connectors
Serial	▪ 2 x Serial ports with TX and RX signals
Expansion Buses	▪ 1 x SMBus interface ▪ 1 x I²C bus ▪ 1 x SDIO interface (default) ▪ 1 x GPIO interface with 4 IN's and 4 OUT's, shared with SDIO (by request) ▪ 1 x LPC bus interface ▪ 1 x SPI ▪ Support ExpressCard, speaker out, reset function, thermal protection, suspend/wake signals, power button, power good and fan control signals

Mechanical and Environment

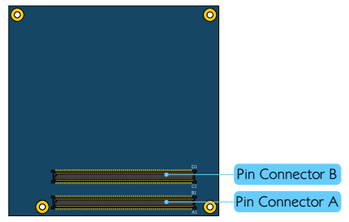
COM Express Compliance	▪ COM Express™ Type 6, Basic Module
Dimension	▪ 95mm x 95mm (3.73" x 3.73")
Operating Temperature	▪ 0°C ~ 50°C
Storage Temperature	▪ -40°C ~ 70°C
Operating Humidity	▪ 0% ~ 95% (relative humidity; non-condensing)

COMe-8X90 Module Layout Diagram

Top View



Bottom View



COMEDB2 Carrier Board Specifications

COM Express Module Type

- Support COM Express™ Type 6

Audio

- VIA VT1828S High Definition Audio Codec

Super I/O

- VIA VT1211 LPC Super IO

BIOS

- AMI BIOS
- 4/8Mbit LPC Flash BIOS, PLCC 32 pin or SPI BIOS

Front Panel I/O

- 1 x SD card slot (SDIO), shared with DIO1 pin header

Rear Panel I/O

- 1 x VGA port
- 1 x COM port
- 1 x DisplayPort
- 1 x HDMI® port
- 4 x USB 3.0 ports
- 1 x Gigabit Ethernet port
- 6 x Audio jacks (supports multi-channel audio outputs)

Onboard Slots, Buttons and Power Connectors

- 1 x ATX power connector
- 1 x AUX power connector
- 1 x miniPCIe slot
- 1 x Power button
- 1 x Reset button
- 2 x SATA connectors
- 1 x Reserved PCIe x4 slot for DVP
- 1 x Reserved PCIe x4 slot for VCP
- 2 x PCIe x1 slots
- 1 x PCIe x16 (supports 4-Lane) slot for PEG

Onboard Pin Headers and Connectors

- 1 x COM2 pin header, add +5V/+12V power select option on RI pin
- 1 x LPT pin header
- 1 x SPI pin header
- 1 x LPC pin header
- 1 x DIO1 pin header, shared with SDIO port
- 1 x DIO2 pin header (from VIA VT1211)
- 1 x SMBus pin header
- 1 x I²C pin header
- 2 x USB 2.0 pin headers for USB 2.0 port 0~3
- 1 x Front LAN LED pin header
- 1 x Front Audio pin header
- 1 x Front Panel pin header (for HDD LED, Power LED, Switch and Speaker)
- 1 x CD-In connector
- 1 x System sensor pin header
- 1 x CPU fan connector
- 1 x System fan connector
- 1 x Serial Port pin header
- 1 x Inverter connector
- 1 x LVDS panel connector
- 1 x S/PDIF connector

Onboard Jumpers

- 1 x Clear CMOS jumper
- 1 x Inverter power select jumper
- 1 x LCD panel power select jumper
- 2 x BIOS type select jumpers (for select LPC/SPI BIOS)
- 2 x BIOS select jumpers (for select module/carrier board BIOS)
- 2 x COM voltage select jumpers
- 1 x TV/DVP select jumper
- 2 x USB 2.0 port select jumpers
- 1 x USB 2.0 to miniPCIe slot select jumper

Form Factor and Dimension

- Micro-ATX
- 10" x 9.6"

Operating Temperature

- 0°C ~ 60°C

Storage Temperature

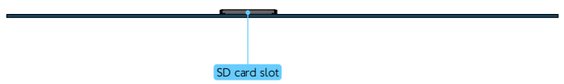
- -40°C ~ 70°C

Operating Humidity

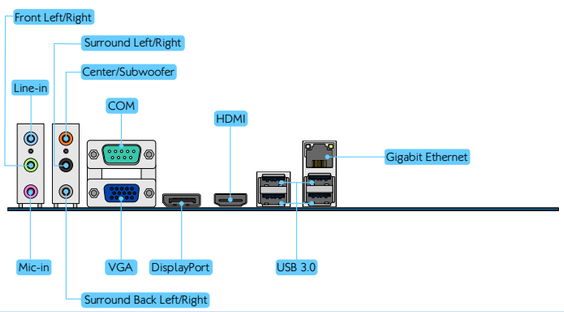
- 0% ~ 95% relative humidity

COMEDB2 Carrier Board Layout Diagram

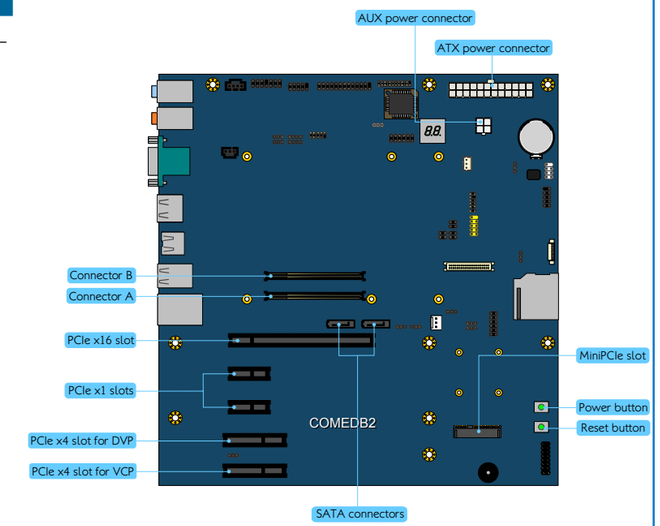
Front Panel I/O



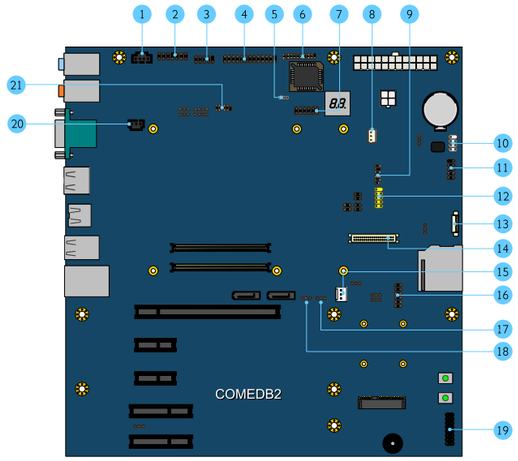
Rear Panel I/O



Onboard Slots, Buttons and Power Connectors



Onboard Pin headers and Connectors



1 CD_IN

1	CD_IN_L		
2	CD_IN_GND		
3	CD_IN_GND		
4	CD_IN_R		

2 F_AUDIO

MIC2_FR_L	1	2	AGND
MIC2_FR_R	3	4	FNT_DET
HP_OUT_R	5	6	MIC2_JD
FNT_IO_SENSE	7	8	KEY
HP_OUT_L	9	10	LINE2_JD
+12V	11	12	+12V
AGND	13	14	AGND

3 COM2

COM_DCD2	1	2	COM_RXD2
COM_TXD2	3	4	COM_DTR2
GND	5	6	COM_DSR2
COM_RTS2	7	8	COM_CTS2
COM_RI2	9	10	KEY

4 LPT

-LP_STB	1	2	-LP_AFD
LP_D0	3	4	-LP_ERR
LP_D1	5	6	-LP_INIT
LP_D2	7	8	-LP_SLIN
LP_D3	9	10	GND
LP_D4	11	12	GND
LP_D5	13	14	GND
LP_D6	15	16	GND
LP_D7	17	18	GND
-LP_ACK	19	20	GND
LP_BUSY	21	22	GND
LP_PE	23	24	GND
LP_SLCT	25	26	KEY

5 SYS_SEN

1	DTDP	
2	DTDP	
3	GND	

6 LPC

LPC_AD1	1	2	LPC_33M_CLK
-LPC_RESET	3	4	GND
LPC_AD0	5	6	NC
LPC_AD2	7	8	-LPC_FRAME
LPC_SERIRQ	9	10	LPC_AD3
-LPC_DRQ1	11	12	NC
+5V	13	14	+3.3V
+5V	15	16	+3.3V
GND	17	18	GND
GND	19	20	KEY

7 DIO2

5V_DIO2	1	2	12V_DIO2
SIO_GPO30	3	4	SIO_GPI34
SIO_GPO31	5	6	SIO_GPI35
SIO_GPO32	7	8	SIO_GPI36
SIO_GPO33	9	10	SIO_GPI37
GND	11	12	GND

8 CPUFAN

1	FANIO	
2	FANPWM	
3	GND	

9 USB2_0/1

VUSB	1	2	VUSB
USBD_T4-	3	4	USBD_T5-
USBD_T4+	5	6	USBD_T5+
GND	7	8	GND
KEY	9	10	W_LESS_LED
GND	11	12	-RF_ON

10 SPI

SPI_VCC	1	2	GND
-SPI_SS0	3	4	SPI_CLK
SPI_DI	5	6	SPI_DO
KEY	7	8	RESET

11 SER_PORT

SER0_TX_CON	1	2	SER0_RX_CON
NC	3	4	NC
GND	5	6	NC
SER1_TX_CON	7	8	SER1_RX_CON
NC	9	10	KEY

12 USB2_2/3

VUSB	1	2	VUSB
USBD_T6-	3	4	USBD_T7-
USBD_T6+	5	6	USBD_T7+
GND	7	8	GND
KEY	9	10	GND

13 Inverter

1	IVDD_IN
2	IVDD_IN
3	BAKLITE_EN
4	BLT_CK
5	BAKLITE_EN
6	BLT_CTRL
7	GND
8	GND

14 LVDS

NC-	1	2	PVDD
NC	3	4	PVDD
GND	5	6	GND
NC	7	8	GND
NC	9	10	-A0_L
GND	11	12	A0_L
NCL	13	14	GND
NC	15	16	-A1_L
GND	17	18	A1_L
NC	19	20	GND
NC	21	22	-A2_L
GND	23	24	A2_L
NC	25	26	GND
NC	27	28	-CLK1_L
NC	29	30	CLK1_L
NC	31	32	GND
NC	33	34	-A3_L
NC	35	36	A3_L
NC	37	38	SPCLK
NC	39	40	SPD

15 SYSFAN

1	FANIO	
2	FANPWM	
3	GND	

16 DIO1

5V_DIO1	1	2	12V_DIO1
COM_GPO0	3	4	COM_GPI0
COM_GPO1	5	6	COM_GPI1
COM_GPO2	7	8	COM_GPI2
COM_GPO3	9	10	COM_GPI3
GND	11	12	GND

17 I2C_BUS

1	I2C_CLK
2	I2C_DATA
3	GND

18 SMBUS

1	SMB_CLK
2	SMB_DATA
3	GND

19 F_PANEL

FP_5V	1	2	FP_3V
FP_5V	3	4	-SATA_LED
-PLED	5	6	-PW_BTN
FP_5V	7	8	GND
NC	9	10	RST_SW
NC	11	12	GND
SPEAK	13	14	FP_5V
KEY	15	16	NC

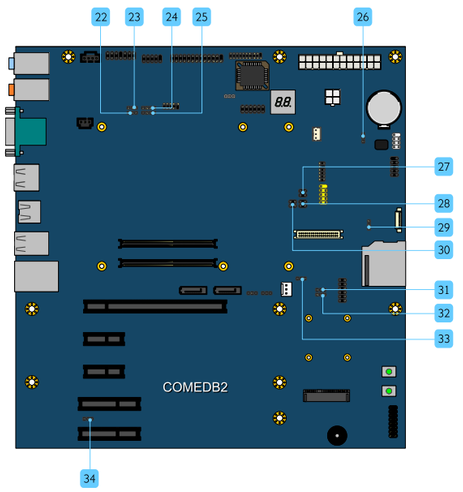
20 SPDIF

1	+5V
2	SPDIFO
3	GND

21 FLAN_LED

3VSUS	1	2	-LAN_ACT
3VSUS	3	4	NC
GND	5	6	W_LAN_LED
3VSUS	7	8	GND
KEY	9	10	GND

Onboard Jumpers



22 BIOS_SEL0 / 23 BIOS_SEL1

BIOS_SEL0	BIOS_SEL1	Description
1-2	2-3	Select SPI BIOS (default)
2-3	1-2	Select LPC BIOS

24 JP_COM2_VSEL

Pins	Description
1-2	Enabled COM2 pin header to support +5V
2-3	Normal (default)
3-4	Enabled COM2 pin header to support +12V

25 JP_COM1_VSEL

Pins	Description
1-2	Enabled COM1 connector to support +5V
2-3	Normal (default)
3-4	Enabled COM1 connector to support +12V

26 CLEAR_CMOS

Pins	Description
1-2	Keep CMOS settings (default)
2-3	Clear CMOS settings

27 JP_USB3_SEL

Pins	Description
1-2	Enabled USB 2.0 Port 3 (USB2_3). (default)
3-4	Enabled USB 2.0 Port 3 (USB2_3). (default)

28 JP_USB2_SEL

Pins	Description
1-2	Enabled USB 2.0 Port 2 (USB2_2). (default)
3-4	Enabled USB 2.0 Port 2 (USB2_2). (default)

Note: For [28] JP_USB2_SEL to be activated, the [30] JP_USBME_SEL function has to be disabled.

29 IVDD

Pins	Description
1-2	Use +5V for the Inverter power
2-3	Use +12V for the Inverter power (default)

30 JP_USBME_SEL

Pins	Description
1-2	Enabled USB 2.0 Port 2 to miniPCIe slot.
3-4	Enabled USB 2.0 Port 2 to miniPCIe slot.

Note: For [30] JP_USBME_SEL to be activated, the [28] JP_USB2_SEL function has to be disabled.

31 BIOS_DIS1 / 32 BIOS_DIS0

BIOS_DIS1	BIOS_DIS0	Description
1-2	1-2	Select module SPI BIOS (default)
1-2	2-3	Select carrier board LPC BIOS
2-3	1-2	Select module LPC BIOS
2-3	2-3	Select carrier board SPI BIOS

33 PVDD

Pins	Description
1-2	Use +5V for the LCD panel power.
2-3	Use +3.3V for the LCD panel power (default)

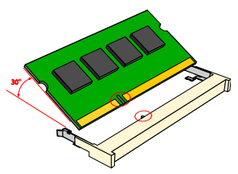
34 TV_DVP_SEL

Pins	Description
1-2	Enabled TTL/TV support from DVP slot
2-3	Plug detect from DVP slot (default)

1 Installing SODIMM memory on COMe-8X92 module

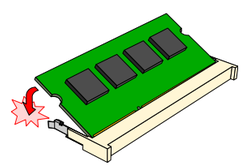
Step 1

Align the notch on the memory module with the protruding wedge on the SODIMM slot. Insert the memory module into the socket at 30 degrees angle.



Step 2

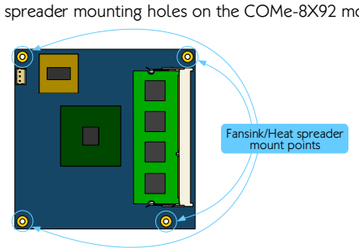
Push down until the memory module snaps into place. The memory slot has two locking mechanisms that will click once the memory module has been fully inserted.



2 Installing COMe-8X92 module to COMEDB2 carrier board

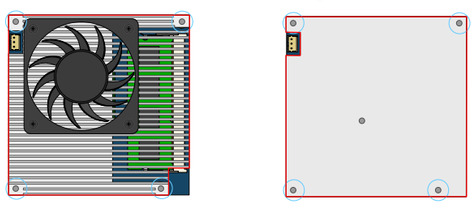
Step 1

Locate the fansink/heat spreader mounting holes on the COMe-8X92 module.



Step 2

Align the fansink/heat spreader over the mounting holes.



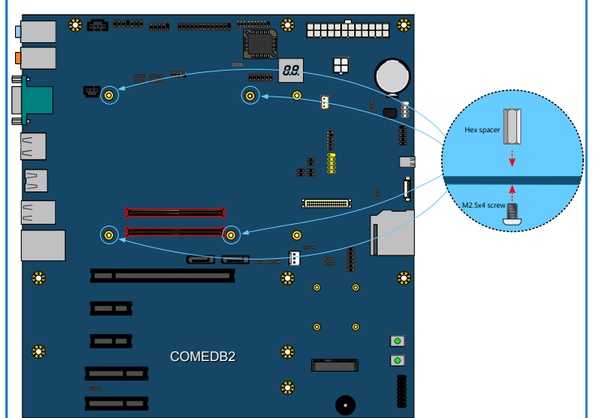
Note:
Make sure the thermal pad or thermal paste has been applied on top of the processor and chipset before installing the fansink/heat spreader.

Step 3

Locate the carrier board mounting points (x4) and the connectors (x2).

Step 4

Install the hex spacer onto the carrier board. The hex spacer must be placed on top of the board. From the bottom of the board, tighten the hex spacers by using the M2.5x4 screws (x4).

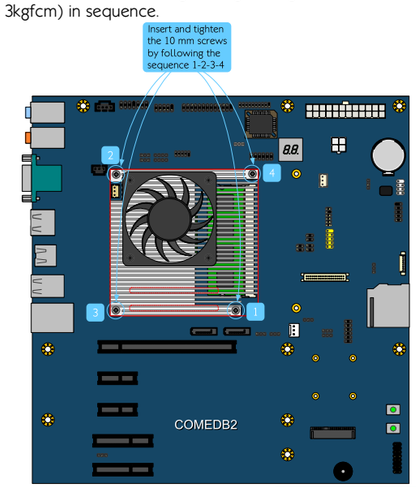


Step 5

Align the pin connectors and mounting points of the COMe-8X92 into the connectors and hex spacers on the carrier board respectively.

Step 6

Press down the COMe-8X92 module until the pin connectors have been fully inserted into the connectors. Secure the COMe-8X92 module with the fansink/heat spreader by screwing and tightening four screws 10mm screws (torque: 3kgfcm) in sequence.



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