VDX-6317D-X

DM&P Vortex86DX 800MHz

Mity-Mite CPU Module

with 1S/USB/LAN/GPIO/PWMx16

256MB DDR2 Onboard

User's Manual

(Revision 1.0A)

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Trademarks Acknowledgment

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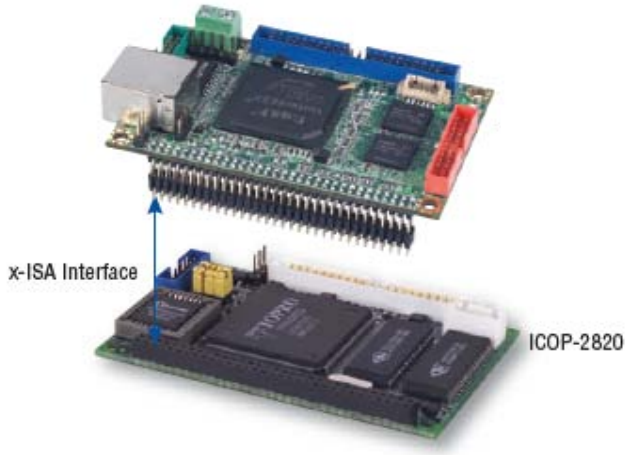
Chapter 1

Introduction

1.1 Packing List

Product Name	Package
VDX-6317D-X	• Embedded Vortex86DX CPU All-in-One Board • Manual & Drivers CD x 1 • RS232 cable x 1 • IDE cable x 1 • GPIO cable x 1 • PS/2 Keyboard cable x 1 • USB cable x 1 (Optional)



VGA function support via x-ISA interface

1.2 Product Description

The VDX-6317D-X family of low-power x86 embedded controller is designed to meet Tiny specification, and integrated with the following features.

- 800MHz Vortex86DX System-On-Chip
- 256MB DDR2 system memory
- Enhanced IDE (UltraDMA-100/66/33)
- 10/100Mbps Ethernet
- 1 USB 2.0 (host)
- Up to 1 serial ports
- 16-bit GPIO x1
- x-ISA bus
- 2 watchdog timer
- PWM 16 channels
- JTAG interface
- AMI BIOS
- 4MB SPI flash
- Single voltage +5V DC
- Support extended operating temperature range of -20°C to +70°C

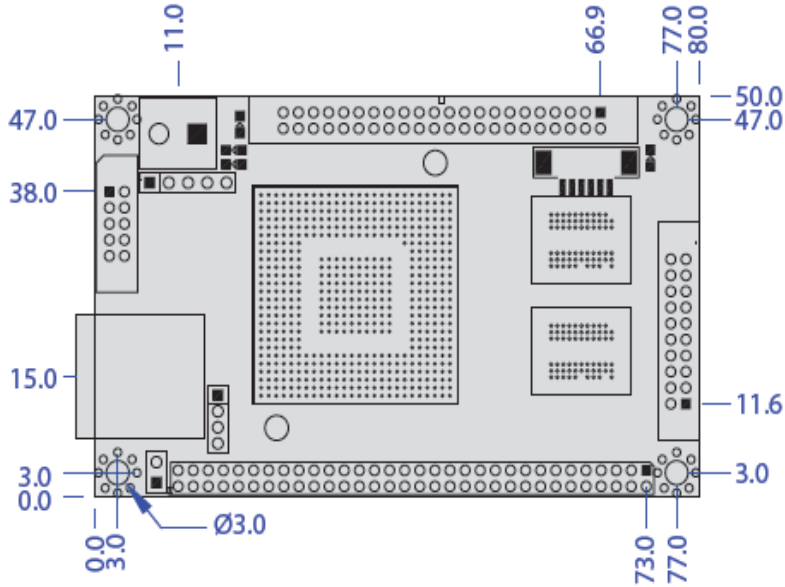
The VDX-6317D-X Tiny family of embedded controller is designed with backward compatibility in mind, to provide migration path for projects facing end-of-life challenges with their existing x86 based Mity-Mite controller. The VDX-6317D-X family of controller is designed as a plug in replacement, with backward compatibility to support legacy software to help extend existing product life cycle without heavy re-engineering.

VDX-6317D-X is suitable for broad range of data-acquisition, Industrial automation, Process control, Automotive controller, AVL, Intelligent Vehicle management devic,Medical device, Human machine interface, Robotics, machinery control And more…application that required small footprint, low-power and low-cost hardware with open industry standard such asTiny.

1.3 Specifications

Features	VDX-6317D-X
CPU	DM&P SoC CPU Vortex86DX- 800MHz Real Time Clock with Lithium Battery Backup
Cache	L1:16K I-Cache, 16K D-Cache L2:128KB Cache
BIOS	AMI BIOS
Bus Interface	16-bit x-ISA interface
System Memory	256MB DDR2 Onboard
Watchdog Timer	Software programmable from 30.5 us to 512 seconds x2 sets(Watchdog 1 fully compatible with M6117D)
LAN	Integrated 10/100M Ethernet
I /O Interface	• Enhanced IDE port (UltraDMA-100/66/33) x1 • RS-232 port x1 • USB port x1 (USB 2.0 version) • 16-bit GPIO port x1 • 10/100Mbps Ethernet port x1
Connectors	• 2.00 mm ∅ 44-pin box header for IDE x1 • 2.00 mm ∅ 20-pin box header for 16-bit GPIO x1 • 2.00 mm ∅ 10-pin box header for RS-232 x1 • 2.00 mm ∅ 4-pin header for USB x1 • 2.54 mm ∅ 5-pin header for keyboard x1 • 1.25mm ∅ 6-pin Wafer for JTAG x1 • External RJ-45 connector for Ethernet x1
Flash Disk Support	• Onboard 4MB SPI Flash Disk (Driver: A) • 44-pin IDE Flash Disk(EmbedDisk 16MB or above) • 44-pin IDE to Micro SD (Optional)
PWM	16~24 Channels
Power Requirement	Single Voltage +5V @ 380mA
Dimension	80mm X 50mm (3.14 x1.96 inches)
Weight	42g
Operating Temperature	-20°C ~ +70°C -40°C ~ +85°C (Optional)

1.4 Board Dimension

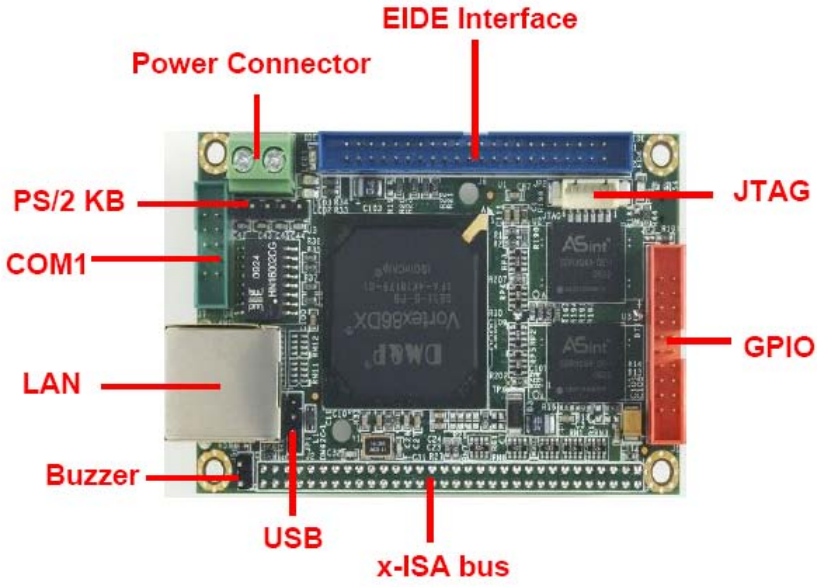


Unit: mm

Chapter 2

Installation

2.1 Board Outline

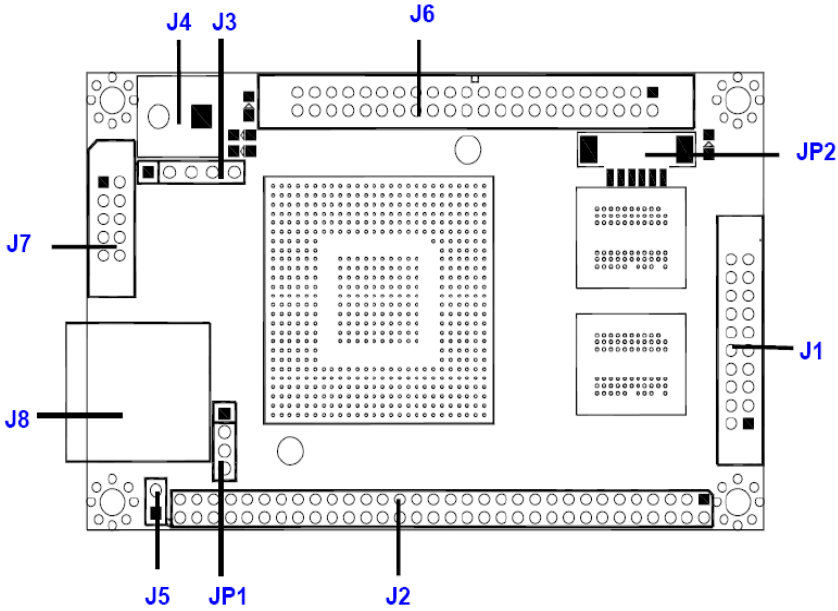


Note: VGA function support (ICOP-2820) via x-ISA Interface

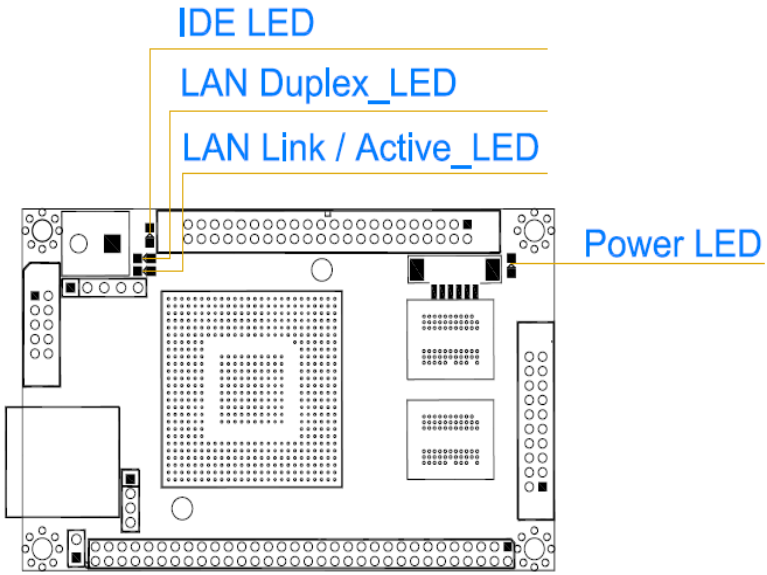
ICOP-2820: http://www.icop.com.tw/products_detail.asp?ProductID=7

2.2 Connectors & Jumpers Location

Connectors



Jumpers & LEDs



2.3 Connectors & Jumpers Summary

Summary Table			
Nbr	Description	Type of Connections	Pin nbrs.
J1	GPIO (Port 0 / 1/ PWMx16)	Box Header, 2.0∅ ,10x2	20-pin
J2	x-ISA Connector – 64 pin	Box Header, 2.0∅, 32x2	64-pin
J3	PS/2 Keyboard	Pin Header, 2,54∅,1x5	5-pin
J4	Power Connector	Terminal Block 5.0∅,2x1	2-pin
J5	Buzzer	Pin Header, 2,0∅,1x2	2-pin
J6	IDE	Box Header, 2.0∅ ,22x2	44-pin
J7	COM1(TTL / PWMx8 Optional)	Box Header, 2.0∅ 5x2	10-pin
J9	Console Redirection	Pin Header, 2.54∅ , 2x1	2-pin
JP1	USB	Pin Header, 2,0∅,4x1	4-pin
JP2	JTAG	Wafer, 1.25∅ , 6x1	6-pin
LAN	10/100Base-T Ethernet LAN	RJ45 Connector	8-pin
PWR-LED	Power Active LED (Red)	LED-SMD	
IDE- LED	IDE Active LED (Green)	LED-SMD	
LED 2	LAN Duplex LED (Yellow)	LED-SMD	
LED 3	LAN Link/Active LED (Green)	LED-SMD	

2.4 Pin Assignments & Jumper Settings

J1: GPIO (Port 0 / 1/ PWMx16)

Pin #	Signal Name	Pin #	Signal Name
1	GND	2	VCC
3	GP00	4	GP10
5	GP01	6	GP11
7	GP02	8	GP12
9	GP03	10	GP13
11	GP04	12	GP14
13	GP05	14	GP15
15	GP06	16	GP16
17	GP07	18	GP17
19	VCC	20	GND

J2: x-ISA Connector – 64pin

Pin #	Signal Name	Pin #	Signal Name
1	GND	2	SBHE
3	RSTDRV	4	SD7
5	VCC	6	SD6
7	SD8	8	SD5
9	SD9	10	SD4
11	SD10	12	SD3
13	SD11	14	SD2
15	SD12	16	SD1
17	SD13	18	SD0
19	GND	20	IOCHRDY
21	SMEMW	22	AEN
23	SMEMR	24	SA19
25	IOW	26	SA18
27	IOR	28	SA17
29	SD14	30	SA16
31	SD15	32	SA15
33	MEMCS16	34	SA14
35	ICOS16	36	SA13
37	REFRESH	38	SA12

39	SYSCLK	40	SA11
41	IRQ7	42	SA10
43	IRQ6	44	SA9
45	IRQ5	46	SA8
47	IRQ4	48	SA7
49	IRQ3	50	SA6
51	IRQ10	52	SA5
53	IRQ11	54	SA4
55	BALE	56	SA3
57	VCC	58	SA2
59	OSC	60	SA1
61	GND	62	SA0
63	IRQ12	64	IRQ14

J3: PS/2 Keyboard

Pin #	Signal Name	Pin #	Signal Name
1	KBCLK	2	KBDAT
3	NC	4	GND
5	VCC		

J4: Power Connector (Terminal Block 5.0mm)

Pin #	Signal Name
1	+5V
2	GND