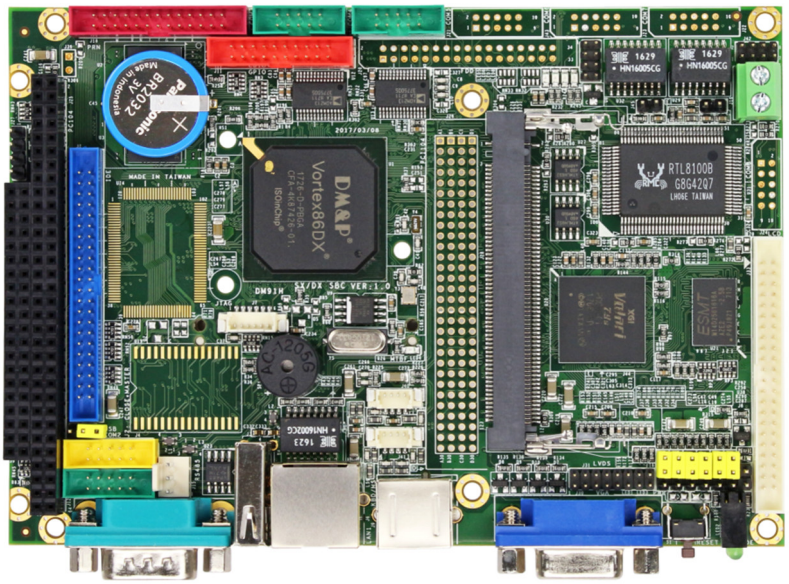
User Manual



VDX-6326RD-NF

with

DM&P Vortex86DX 800MHz processor

Version 1.1

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Revision History

Revision	Date	Remark
1.0	May 7, 2017	First version released
1.1	Feb 7, 2020	Remove Y cable from cable list

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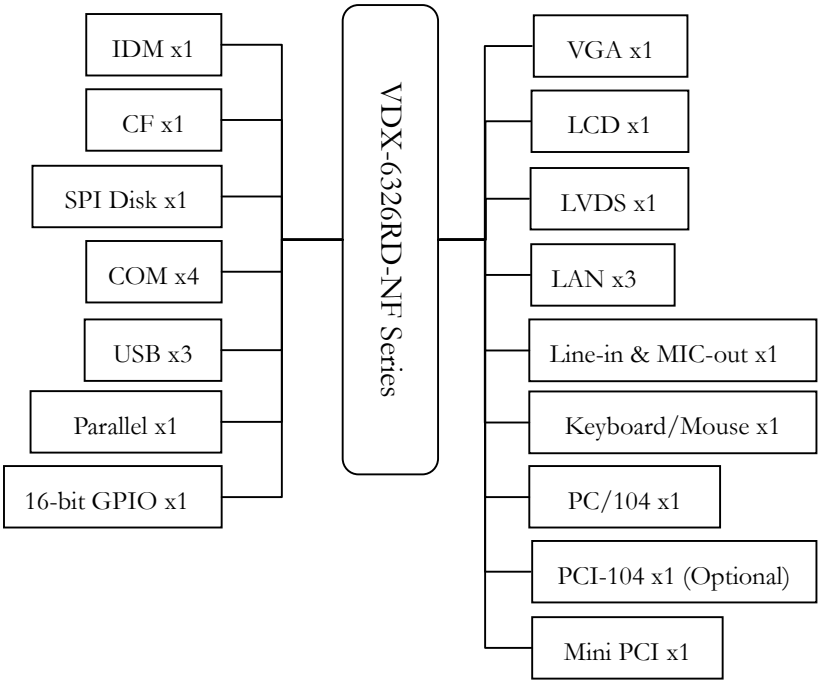
General Information

1.1 Packing List

Product Name	Package	
VDX-6326RD-NF VDX-6326RD-NF-512	VDX-6326RD-NF board x1 RS232 cable x3 Parallel cable x1 IDE cable x1	LAN cable x2 GPIO cable x1 Audio line x2 USB cable x1

1.2 Block diagram



1.3 Specifications

CPU	Vortex86DX 800MHz		
RMA	256/512MB DDR2 Onboard		
BIOS	AMI BIOS		
Bus	PC/104 standard compliant	Mini PCI standard compliant	
Display	XGI Volari Z9s Chipset with VGA, TFT-LCD, and 18-bit LVDS Flat Panel Interface Support and onboard 32MB VGA memory VGA: Maximum resolution up to 1280 x 1024 @ 60Hz LVDS/TFT-LCD: Maximum resolution up to 1024 x 768 @ 60Hz		
LAN	Integrated 10/100Mbps Ethernet x1 Realtek 8100B 10/100Mbps Ethernet x2		
Disk Support	IDE DoM	Compact Flash	Onboard 4MB SPI Flash
SRAM Support	512KB (Optional)		
I/O Interface	RS232 x3	16-bit GPIO x1	Parallel x1
	USB (Ver. 2.0) x3	RS232/422/485 x1	Audio
Connectors	2.54mm 4-pin pin header for +12V, -12V, -5V, GND x1 2.54mm 2-pin pin header for Reset x1 2.54mm 3-pin pin header for RS485 x1 2.54mm 104-pin PC/104 connector x1 2.0mm 8-pin header for Ethernet x2 2.0mm 16-pin pin header for LVDS x1 2.0mm 44-pin box header for IDE x1 2.0mm 44-pin box header for LCD x1 2.0mm 26-pin box header for Parallel x1 2.0mm 20-pin box header for 16-bit GPIO x1 2.0mm 10-pin box header for RS232 x3 2.0mm 10-pin box header for USB x1 1.25mm 4-pin wafer for Line-in/MIC-out x2 0.8mm 124-pin Mini PCI connector x1 9-pin D-Sub male connector for RS232 x1 15-pin D-Sub female connector for VGA x1 RJ45 connector for Ethernet x1 USB connector x1 Mini DIN connector for Keyboard/Mouse x1 Type I/II Compact Flash Slot x1 PCI-104 connector x1 (Optional)		

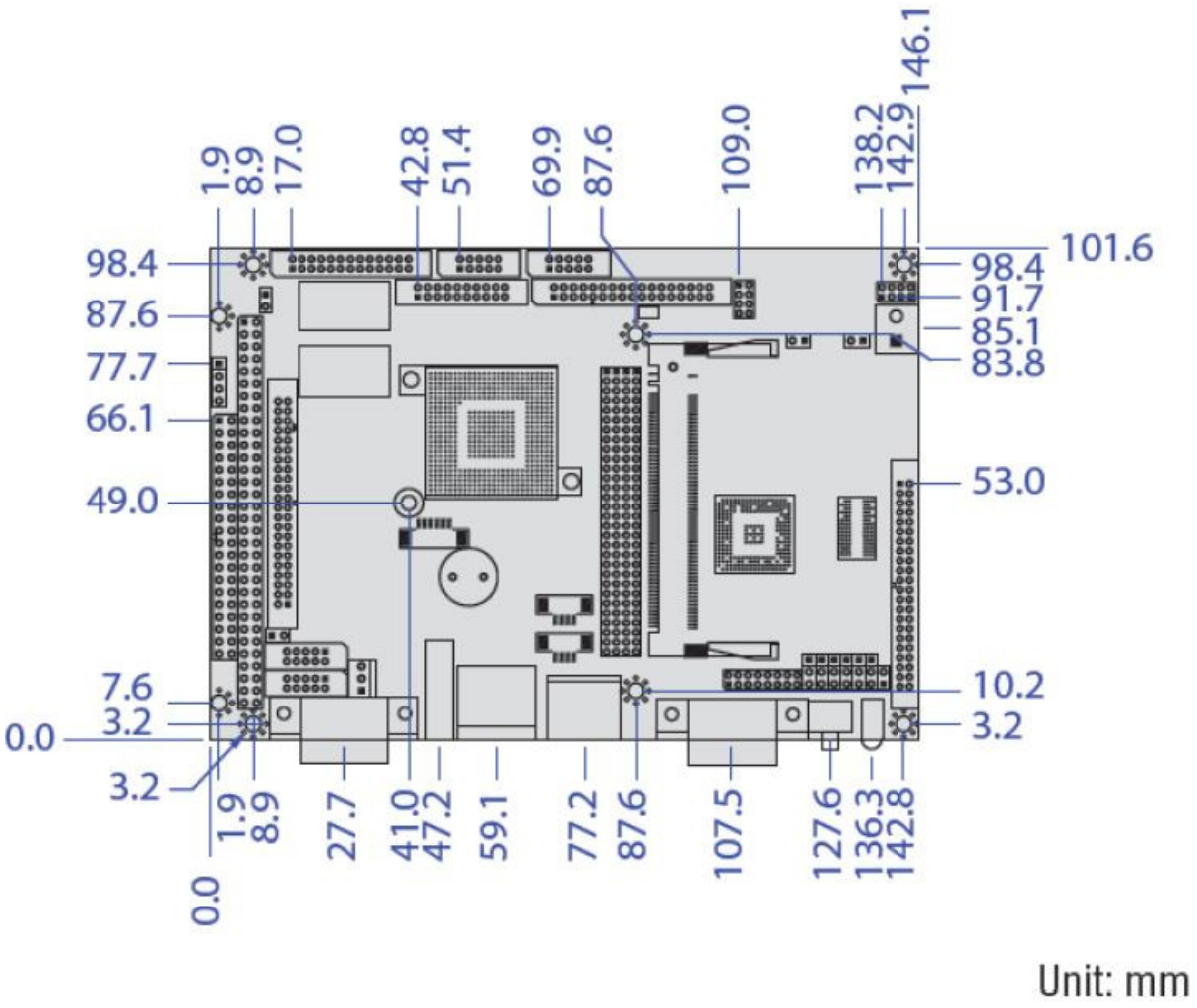
Power Requirement	DC +5V @ 880mA	
Operating Temperature	-20°C - +70°C -40°C - +85°C (Optional)	
Dimension	102 x 146mm	
Weight	150g	
O/S Support	Windows Embedded 2009	Free BSD
	Windows Embedded CE6.0	DOS
	Windows Embedded CE5.0	POS Ready (WePOS)
	Linux	VxWorks

1.4 Ordering Information

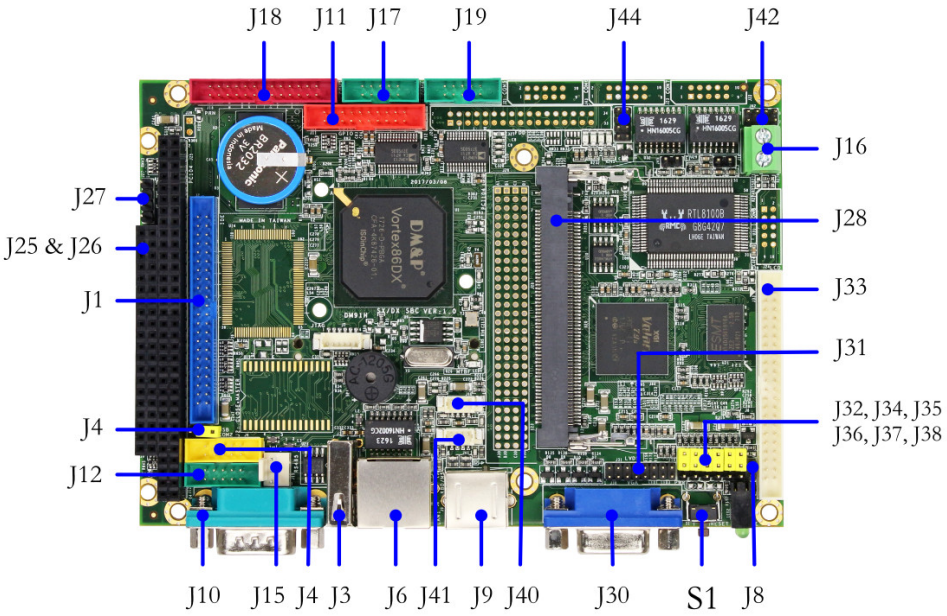
PART NO.	VDX-6326RD-NF	VDX-6326RD-NF-512
CPU (MHz)	800MHz	
DRAM (DDR3)	256MB	512MB
Storage	IDE DoM Compact Flash SPI Flash	
Display	VGA, LVDS, TFT-LCD	
Bus	PC/104, PCI-104 (Optional)	
LAN	3	
RS232	3	
RS485	1	
USB	3	
Parallel	1	
Audio	Line-out, MIC-in	
Keyboard	1	
Mouse	1	

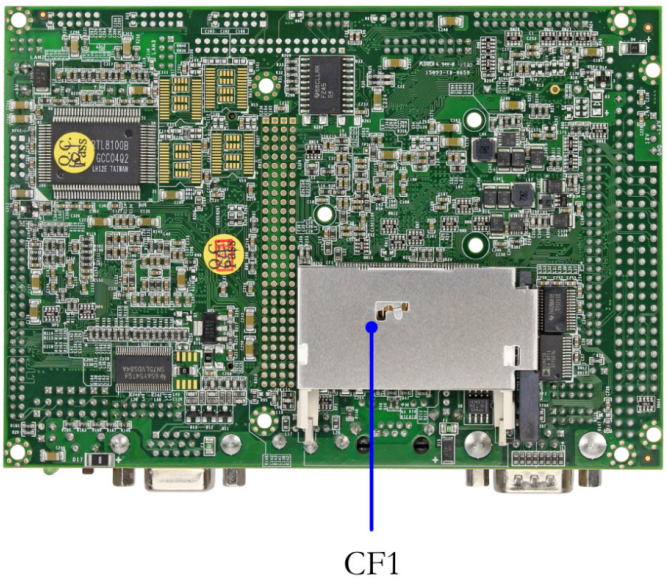
2 Hardware Information

2.1 Dimension



2.2 Board Outline and Connector Location





Note:

1. COM2 RS232/422/485 is selected by BIOS setting.
2. PCI-104 connector is optional.
3. VI/O default setting of PCI-104 connector is +5V
4. VDX-6326RD-NF-512 is optional.

2.3 Connector and Jumper Summary

Nbr.	Name	Type of Connections	Pin of Nbr.
J1	IDE	Box Header, 2.0mm, 22x2	44
J2	Jumper Switch for CF Mater/Slave	Pin Header, 2.54mm, 2x1	2
J3	USB2	Type A USB Connector	4
J4	USB1	Box Header, 2.0mm, 5x2	10
J6	LAN	RJ45 connector	8
J8	Reset	Pin Header, 2.54mm, 1x2	2
J9	PS/2 Connector (Keyboard/Mouse)	Mini Din Female Connector	6
J10	COM1	D-Sub Male Connector	9
J11	GPIO (P0/1 or PWMx16)	Box Header, 2.0mm, 10x2	20
J12	COM2 (RS232/422/485)	Box Header, 2.54mm, 5x2	10
J15	RS485	Molex Header, 2.54mm, 3x1	3
J16	Power Connector	Terminal Block, 5.0mm, 2x1	2
J17	COM3	Box Header, 2.0mm, 5x2	10
J18	Parallel	Box Header, 2.0mm, 13x2	26
J19	COM4	Box Header, 2.0mm, 5x2	10
J25	PC104 Connector (64 pins)	Box Header, 2.54nn, 32x2	64
J26	PC104 Connector (40 pins)	Box Header, 2.54nn, 20x2	40
J27	4P Power Source (Interconnect to PC/104 – J25)	Pin Header, 254mm, 4x1	4
J28	MINI PCI Type III	Type III connector	124
J29	PC/104 (Optional)	Box Header, 2.0mm, 30x4	120
J30	VGA	D-Sub Female Connector	15
J31	LVDS	Pin Header, 2.0mm, 8x2	16
J32 to J38	Jumper Switch for Display Type	Pin Header, 2.54mm, 3x1	3
J33	LCD	Box Header, 2.0mm, 22x2	44
J40	Line-out	Wafer, 1.25mm, 4x1	4
J41	MIC-in	Wafer, 1.25mm, 4x1	4
J42	LAN2	Pin Header, 2.00mm, 2x4	8

J43	LAN3	Pin Header, 2.00mm, 2x4	8
J44	Jumper Switch for LAN2	Pin Header, 2.54mm, 2x1	2
J45	Jumper Switch for LAN3	Pin Header, 2.54mm, 2x1	2
CF1	Compact Flash	Type I/II CF Slot	50
PWR LED	Power Active LED (Red)		
IDE LED	IDE Active (Green)		
MTBF LED	MTBF LED (Orange)	LED SMD	
SP1	Buzzer		
S1	Reset Switch		

2.4 Pin Assignments & Jumper Settings

J1: IDE

Pin#	Signal Name	Pin #	Signal Name
1	IDERST	2	GND
3	IDED7	4	IDED8
5	IDED6	6	IDED9
7	IDED5	8	IDED10
9	IDED4	10	IDED11
11	IDED3	12	IDED12
13	IDED2	14	IDED13
15	IDED1	16	IDED14
17	IDED0	18	IDED15
19	GND	20	NC
21	IDEREQ	22	GND
23	IDEIOW	24	GND
25	IDEIOR	26	GND
27	ICHRDY	28	GND
29	IDEACK	30	GND
31	IDEINT	32	NC
33	IDESA1	34	IDECBLID
35	IDESA0	36	IDESA2
37	IDECS-0	38	IDECS1
39	IDELED	40	GND
41	VCC	42	VCC
43	GND	44	NC

J2: Jumper Switch for CF Mater/Slave

Pin#	Signal Name
CLOSE	Master
OPEN	Slave

J4: USB1

Pin#	Signal Name	Pin #	Signal Name
1	VCC	2	VCC
3	LUSBD0-	4	LUSBD1-
5	LUSBD0+	6	LUSBD1+
7	GND	8	GND
9	GGND	10	GGND

J6: LAN

Pin#	Signal Name	Pin #	Signal Name
1	TD+	2	TD-
3	RO+	4	NC
5	NC	6	RO-
7	NC	8	NC

J8: Reset

Pin#	Signal Name	Pin #	Signal Name
1	Reset	2	GND

J9: PS/2 Connector (for Keyboard/Mouse)

Pin#	Signal Name	Pin #	Signal Name
1	KBCLK	2	MSCLK
3	GND	4	KBDAT
5	MSDAT	6	VCC
7	GGND	8	GGND
9	GGND		

J10: COM1 (Optional: TTL/GPIO-P4/PWM x8)

Pin#	Signal Name	Pin #	Signal Name
1	DCD1	2	RXD1
3	TXD1	4	DTR1
5	GND	6	DSR1
7	RTS1	8	CTS1
9	RI1	10	GND

J11: GPIO (Port0/1 or PWM x16)

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

J12: COM2 RS232/433/485 (Optional: TTL)

Pin#	Signal Name	Pin #	Signal Name
1	DCD2/ 422TX-/ RS485-	2	RXD2/ 422TX+/ RS485+
3	TXD2/ 422RX+	4	DTR2 / 422RX-
5	GND	6	DSR2
7	RTS2	8	CTS2
9	RI2	10	NC

J15: RS485 (Auto direction)

Pin#	Signal Name
1	RS485+
3	RS485-
5	GND

J16: Power Connector (Terminal Block: 5.0mm)

Pin#	Signal Name
1	+5V
3	GND

J17: COM3 (Optional: TTL)

Pin#	Signal Name	Pin #	Signal Name
1	DCD3	2	RXD3
3	TXD3	4	DTR3
5	GND	6	DSR3
7	RTS3	8	CTS3
9	RI3	10	NC

J18: Parallel

Pin#	Signal Name	Pin #	Signal Name
1	STB-	14	AFD-
2	PD0	15	ERR-
3	PD1	16	INIT-
4	PD2	17	SLIN-
5	PD3	18	GND
6	PD4	19	GND
7	PD5	20	GND
8	PD6	21	GND
9	PD7	22	GND
10	ACK-	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SLCT	26	NC

J19: COM4 (Optional: TTL)

Pin#	Signal Name	Pin #	Signal Name
1	DCD4	2	RXD4
3	TXD4	4	DTR4
5	GND	6	DSR4
7	RTS4	8	CTS4
9	RI4	10	NC

J25: PC/104 Connector (64pins)

Pin#	Signal Name	Pin #	Signal Name
1	IOCHCHK*	2	GND
3	SD7	4	RESETDRV
5	SD6	6	VCC
7	SD5	8	IRQ9
9	SD4	10	-5V
11	SD3	12	DRQ2
13	SD2	14	-12V
15	SD1	16	OWS
17	SD0	18	+12V
19	IOCHRDY	20	GND
21	AEN	22	SMEMW*
23	SA19	24	SMEMR*
25	SA18	26	IOW*
27	SA17	28	IOR*
29	SA16	30	DACK3*
31	SA15	32	DRQ3*
33	SA14	34	DACK1*
35	SA13	36	DRQ1*
37	SA12	38	REFRESH*
39	SA11	40	SYSCLK
41	SA10	42	IRQ7
43	SA9	44	IRQ6
45	SA8	46	IRQ5
47	SA7	48	IRQ4
49	SA6	50	IRQ3
51	SA5	52	DACK2*
53	SA4	54	TC
55	SA3	56	BALE
57	SA2	58	VCC
59	SA1	60	OSC
61	SA0	62	GND
63	GND	64	GND

J26: PC/104 Connector (40pins)

Pin#	Signal Name	Pin #	Signal Name
1	GND	2	GND
3	MEMSC16*	4	SBHE*
5	IOCS16*	6	SA23
7	IRQ10	8	SA22
9	IRQ11	10	SA21
11	IRQ12	12	SA20
13	IRQ15	14	SA19
15	IRQ14	16	SA18
17	DACK0*	18	SA17
19	DRQ0	20	MEMR*
21	DACK5*	22	MEMW*
23	DRQ5	24	SD8
25	DACK6*	26	SD9
27	DRQ6	28	SD10
29	DACK7*	30	SD11
31	DRQ7	32	SD12
33	VCC	34	SD13
35	MASTER*	36	SD14
37	GND	38	SD15
39	GND	40	NC

J27: 4P Power Source (Interconnect to PC/104 – J25)

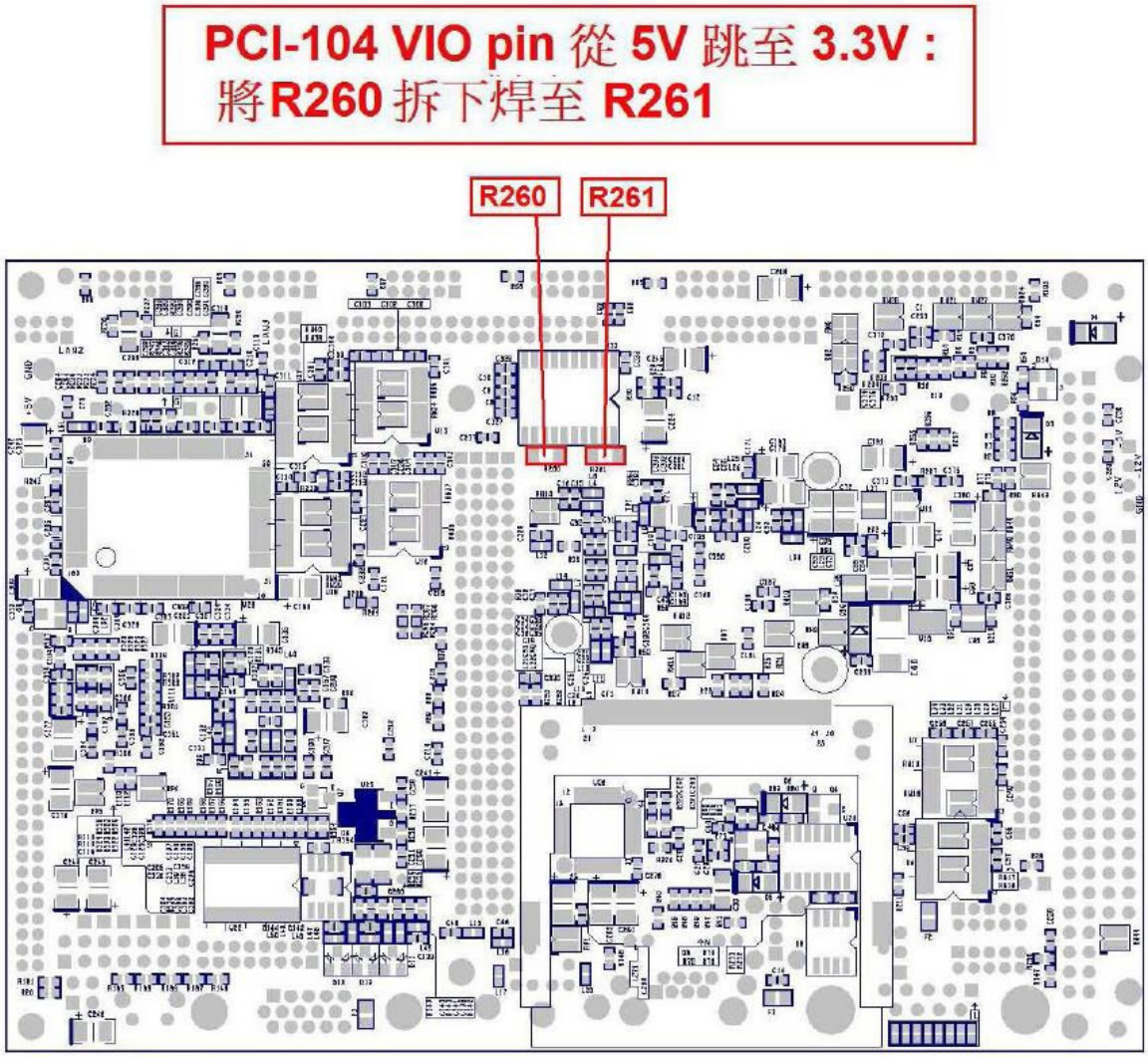
Pin#	Signal Name
1	-5v
2	-12V
3	+12V
4	GND

J29: PC/104 (Optional: TTL)

VI/O Default Setting: +5V; If +3.3v is required, please see the page 16.

Pin#	A	B	C	D
1	GND	NC	+5V	AD00
2	VIO (+5V)	AD02	AD01	+5V
3	AD05	GND	AD04	AD03
4	C/BE0#	AD07	GND	AD06
5	GND	AD09	AD08	GND
6	AD11	VIO (+5V)	AD10	GND
7	AD14	AD13	GND	AD12
8	+3,3V	C.BE1#	AD15	+3.3V
9	SERR#	GND	NC	PAR
10	GND	PERR#	+3.3V	NC
11	STOP#	+3,3V	LOCK#	GND
12	+3,3V	TRDY#	GND	DEVSEL#
13	FRAME#	GND	IRDY#	+3,.3V
14	GND	AD16	+3.3V	C/BE2#
15	AD18	+3.3V	AD17	GND
16	AD21	AD20	GND	AD19
17	+3.3V	AD23	AD22	+3.3V
18	IDSEL0	GND	IDSEL1	IDSEL2
19	AD24	C/BE3#	VIO(+5V)	IDSEL3
20	GND	AD26	AD25	GND
21	AD29	+5V	AD28	AD27
22	+5V	AD30	GND	AD31
23	REQ0#	GND	REQ1#	VIO(+5V)
24	GND	REQ2#	+5V	GNT0#
25	GNT1#	VIO(+5V)	GNT2#	GND
26	+5V	CLK0	GND	CLK1
27	CLK2	+5V	CLK3	GND
28	GND	INTD#	+5V	RTS#
29	+12V	INTA#	INTB#	INTC#
30	-12V	NC	NC	NC

Pleas remove 0 ohm (1206 type) of R260 and add 0 ohm (1206 type) on R261.



J30: VGA

Pin#	Signal Name	Pin #	Signal Name
1	ROUT	2	GOUT
3	BOUT	4	NC
5	GND	6	GND
7	GND	8	GND
9	VCC	10	GND
11	NC	12	DDCDAT
13	HSYNC	14	VSYNC
15	DDCCLK		

J31: LVDS

Pin#	Signal Name	Pin #	Signal Name
1	VCC3	2	VCC3
3	GND	4	GND
5	RxIN0+	6	RxIN0-
7	RxIN1-	8	GND
9	GND	10	RxIN1+
11	RxIN2+	12	RxIN2-
13	CKIN-	14	GND
15	GND	16	CKIN+

J32 to J38: Display Type Setup (CRT/LCD)

Pin#	Signal Name	Pin #	Signal Name
J32	VCC	J34	VCC
	GPIOA		GPIOB
	GND		GND
J35	VCC	J36	VCC
	GPIOC		GPIOD
	GND		GND
J37	VCC	J38	VCC
	GPIOE		GPIOF
	GND		GND

For more details, please refer to Appendix for display type setup.

J33: LCD (DVO) Connector

Pin#	Signal Name	Pin #	Signal Name
1	+3.3V	2	+3.3V
3	LG2	4	LG3
5	LG4	6	LG5
7	NC	8	NC
9	LR0	10	LR1
11	LR2	12	LR3
13	LR4	14	LR5
15	GND	16	NC
17	NC	18	NC
19	NC	20	GND
21	NC	22	NC
23	LB0	24	LB1
25	LB2	26	LB3
27	LB4	28	LB5
29	NC	30	NC
31	LG0	32	LG1
33	GND	34	GND
35	NC	36	LCLK
37	NC	38	LDE
39	NC	40	LHSYNC
41	NC	42	LVSYNV
43	LBACKL	44	LVVDEN

For TFT Flat Panel Data Output, please refer to Appendix.

J40: Lint-out

Pin#	Signal Name
1	LOUTR
2	GND
3	GND
4	LOUTL

J41: MIC-in

Pin#	Signal Name
1	MICVREF
2	GND
3	GND
4	MIC-IN

J42: LAN2

Pin#	Signal Name	Pin #	Signal Name
1	TX+1	2	TX-1
3	RX+1	4	LED01
5	LED01+	6	RX-1
7	LED11+	8	LED11

J43: LAN3

Pin#	Signal Name	Pin #	Signal Name
1	TX+2	2	TX-2
3	RX+2	4	LED21
5	LED02+	6	RX-2
7	LED12+	8	LED12

J44: Jumper Switch for LAN2

Pin#	Signal Name
CLOSE	LAN OFF
OPEN	LAN ON

J45: Jumper Switch for LAN3

Pin#	Signal Name
CLOSE	LAN OFF
OPEN	LAN ON

2.5 System Mapping

Memory Mapping		
Address	Description	Usage
0000:0000 – 9000:FFFF	System RAM	*
A000:0000 – A000:FFFF	EGA/VGA Video Memory	*
B000:0000 – B000:7FFF	MDA RAM, Hercules graphics display RAM	*
B000:8000 – B000:FFFF	CGA display RAM	*
C000:0000 – C000:7FFF	EGA/VGA BIOS RAM	*
C000:8000 – C000:FFFF	Boot ROM Enable	*
D000:0000 – D700:FFFF	Expansion ROM Space	
D800:0000 – DB00:FFFF	SPI Flash Emulation Floppy A Enable	
DC00:0000 – DF00:FFFF	Expansion ROM Space	
E000:0000 – E000:FFFF	USB Legacy SCSI ROM Space	*
F000:0000 – F000:FFFF	Motherboard BIOS	*

I/O Mapping		
I/O Address	Owner	Usage
0000h – 000Fh	DMA 8237-1	*
0010h – 0017h	COM9	
0018h – 001Fh	Empty	
0020h – 0021h	PIC 8259-1	*
0022h – 0023h	6117D Configuration Port	*
0024h – 002Dh	Empty	
002Eh – 002Fh	Forward to LPC Bus	*
0030h – 003Fh	Empty	*
0040h – 0043h	Timer Counter 8254	
0044h – 0047h	Empty	
0048h – 004Bh	PWM Counter 8254	*
004Ch – 004Dh	Empty	
004Eh – 004Fh	Forward to LPC Bus	*
0050h – 005Fh	Empty	
0060h	Keyboard Data Port	*
0061h	Port B + NMI Control Port	*
0062h – 0063h	8051 Download 4K Address Counter	*
0064h	Keyboard Status Port	*

0065h	Watchdog 0 Reload Counter	*
0066h	8051 Download 8-bit Data Port	*
0067h	Watchdog 1 Reload Counter	*
0068h – 006Dh	Watchdog 1 Control Register	*
006Eh – 006Fh	Empty	
0070h – 0071h	CMOS RAM port	*
0072h – 0075h	MTBF counter	*
0076h 0 0077h	Empty	
0078h – 007Ch	GPIO Port 0, 1, 2, 3, 4 Default Setup	*
007Dh – 007Fh	Empty	
0080h – 008Fh	DMA Page Register	*
0090h – 0091h	Empty	
0092h	System Control Register	*
0093h – 0097h	Empty	
0098h – 009Ch	GPIO Direction Register	*
00A0h – 00A1h	PIC 8259-2	*
00A2h – 00BFh	Empty	
00C0h = 00DFh	DMA 8237-2	*
00E0h – 00FFh	Empty	
0100h – 0101h	GPCS1 Default Setting Address	*
0170h – 0177h	IDE1 (IRQ15)	
01Fh – 01F7h	IDE2 (IRQ14)	*
0220h – 0227h	COM8 Forward to LPC Bus	
0228h – 022Fh	COM7 Forward to LPC Bus	
0238h – 023Fh	COM6 Forward to LPC Bus	*
0278h – 027Fh	Printer Port (IRQ 7, DMA 0)	*
02E8h – 2EFh	COM4 (IRQ11)	*
02F8h – 02FFh	COM2 (IRQ3)	*
0338h – 033Fh	COM5 Forward to LPC Bus	*
0376h	IDE ATAPI Device Control Write Only Register	*
03E8h – 03EFh	COM3 (IRQ 10)	*
03F0h – 03F7h	Floppy Disk (IRQ6, DMA 2)	*
03F6h	IDE0 ATAPI Device Control Write Only Register	*
03F8h – 03FFh	COM1 (IRQ4)	*
0480h – 048Fh	DMA High Page Register	*
0490h – 0499h	Instruction Counter Register	*
04D0h – 04D1h	8259 Edge/Level Control Register	*

0CF8h – 0CFFh	PCI Configuration Port	*
D400h – D4FFh	Onboard LAN	*
FC00h – FC05h	SPI Flash BIOS Control Register	*
FC08h – FC0Dh	External SPI Bus Control Register (Output pin configurable GPIO3 [0 -3])	*

IRQ Mapping		
IRQ#	Description	Usage
IRQ0	System Timer	*
IRQ1	Keyboard Controller	*
IRQ2	Cascade for IRQ8 - 15	
IRQ3	Serial Port 2	*
IRQ4	Serial Port 1	*
IRQ5	USB	*
IRQ6	Floppy	*
IRQ7	Parallel Port	*
IRQ8	Real Time Clock	*
IRQ9	USB/RTL 8100B LAN1/ RTL 8100B LAN2Ethernet 10/100M LAN	*
IRQ10	Serial Port 3	*
IRQ11	Serial Port 4	*
IRQ12	Mouse	*
IRQ13	Math Processor	*
IRQ14	Hard Disk Controller #1	*
IRQ15	USB	*

DMA Mapping		
DMA#	Description	Usage
DMA0		
DMA1		
DMA2	Floppy Disk Controller	*
DMA3		
DMA4		
DMA5		
DMA6		
DMA7		

2.6 Watchdog Timer

Two watchdog timers are equipped in Vortex86DX SoC. One is compatible with M6117D watchdog timer and the other one is new. The M6117D compatible watchdog timer is called WDT0 and the new one is called WDT1.

Sample code in DOS, Linux, and WinCE operating system is available. For more details, please refer the links http://www.dmp.com.tw/tech or http://www.dmp.com.tw/tech/vortex86dx/

2.7 GPIO

40 GPIO pins are available on Vortex86DX. All GPIO pins are independent and can be configured as inputs or outputs, with or without pull-up/pull-down resistors.

Sample code in DOS, Linux, and WinCE operating system is available. For more details, please refer the links http://www.dmp.com.tw/tech or http://www.dmp.com.tw/tech/vortex86dx/

2.8 SPI Flash

SPI Flash is often configured as a disk for booting up system or as floppy (A: Driver or B: Driver). Users may need to know how to do BIOS setup configuration for SPI flash and boot it up in DOS.

For technical support, please visit http://www.dmp.com.tw/tech or http://www.dmp.com.tw/tech/vortex86dx/

2.9 PWM

Pulse-width modulation (PWM) of a signal or power source involves the modulation of its duty cycle, to either convey information over a communications channel or control the amount of power sent to a load.

The popular applications of pulse width modulation are in speed control of electric motors, volume control of Class D audio amplifiers or brightness control of light sources and many other power electronics applications.

The Vortex86DX SoC integrated 32 channels of PWM interface enabling the Automation, robotic industry to a New Age x86 SoC platform and we also offer the sample code of PWM which will guide the engineer to control the PWM functionality smoothly.

For more inquire of this sample code that please contact our sales team or mail to: info@icop.com.tw

2.10 IDE to Micro SD

Vortex86DX SoC also built-in simulation circuit to adapt SD to IDE in order to allow your system to recognize microSD card as C: or D: Driver

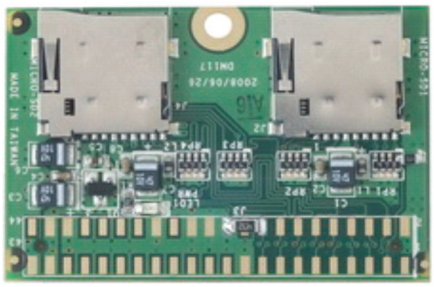
SD-1917: 44 pins IDE to SD Adapter is an ideal solution for industrial PC or embedded system and 44 pins IDE to SD Adapter can be easily installed on all Vortex86DX-63xx CPU boards. You or your customers just do the BIOS setting and use SD-1917 to connect IDE connector of Vortex86DX-63xx directly.

For further inquiries of SD-1917, please contact ICOP sales team or mail to: info@icop.com.tw for your request.

<BIOS setting>

- Get into the BIOS setup Utility
- Choose Primary IDE Pin Select: SD card
- Press **"F10"** to Save configuration changes and exit setup

SD-1917



SD-1917: http://www.icop.com.tw/pddetail.aspx?id=125&pid=4

3 Driver Installation

VGA

The Vortex86DX processor also use external Display chip ""Volari™ Z9s" which is an ultra low powered graphics chipset with total power consumption at around 1-1.5 W. It is capable in providing VGA display output upto 1600x1200. With DVO interface, developers could easily connect flat Panel to support TFT and LVDS output.

LAN

The Vortex86DX processor also integrated 10/100Mbps Ethernet controller that supports both 10/100BASE-T and allows direct connection to your 10/100Mbps Ethernet based Local Area Network for full interaction with local servers, wide area networks such as the Internet.
I/O and IRQ settings can be done by software with the supplied utility software, or it can be set for Plug and Play compatibility. The controller supports: Half / Full-Duplex Ethernet function to double channel bandwidth, auto media detection.

AUDIO

CM119 is a highly integrated single chip USB audio controller specifically for VoIP (Voice over internet protocol) application. All essential analog modules are embedded in CM119, including dual DAC and earphone driver, ADC, microphone booster, PLL, regulator, and USB transceiver. 8 GPIO pins can constitute a 24 key matrix directly support keypad control function without MCU.

Many features are programmable with jumper pins or external EEPROM. Vender can customize unique USB VID/PID to EEPROM for VoIP software authentication. Moreover, individual unique phone number for each device is possible via serial number stored in external EEPROM.

Operating system support

The Vortex86DX-6328RD 3.5" CPU board provides the VGA and LAN drivers for DOS 6.22 Windows CE 5.0, CE 6.0, Windows 98, Windows XP Professional, Windows Embedded standard (XPE) and Windows 2000.

For drivers support, please visit http://www.dmp.com.tw/tech/vortex86dx/

4 Software Resources

4.1 ICOP Technical Resource Website

In the following website, you will find our latest user manuals, including OS ssupport resources systems such as evaluation images for 32-bit Window operating systems. For details, please kindly visit the following link: http://tech.icop.com.tw/

For resource of 32-bit Linux operating systems, please directly contact us at info@icop.com.tw or contact your ICOP contact window.

Technical Support Directly from ICOP

To offer you more accurate and specific solutions for the technical situations you have, please prepare the information below before contacting ICOP:

—Product name and serial number

—Description of the H/W environment (i.e.: working temperature, I/O board information, information of connection between main board and IO boards, and/or other devices, etc)

—Description of the S/W environment (i.e: operating system, version, application software, and/or other related information, etc.)

—A detailed description and photos of the technical situation

—Any complement or technical situations you want ICOP more focusing on

User Manual Feedback

To make this user manual more complete, if you have any comments or feedbacks to this manual, please feel free to write to info@icop.com.tw or contact your ICOP sales representative.

Appendix

TFT Flash Panel Data Output

Vortex86 SX/DX Pin Name		TFT LCD 18 / 24 Bits
1	VCC3 (3.3V)	VDD
2	VCC3 (3.3V)	VDD
3	LG2	G2
4	LG3	G3
5	LG4	G4
6	LG5	G5
7	NC	/
8	NC	/
9	LR0	R0
10	LR1	R1
11	LR2	R2
12	LR3	R3
13	LR4	R4
14	LR5	R5
15	GND	VSS
16	NC	/
17	NC	/
18	NC	/
19	NC	/
20	GND	VSS
21	NC	/
22	NC	/
23	LB0	B0
24	LB1	B1
25	LB2	B2
26	LB3	B3
27	LB4	B4
28	LB5	B5
29	NC	/
30	NC	/
31	LG0	G0
32	LG1	G1
33	GND	VSS
34	GND	VSS
35	NC	/
36	LCLK	XCLK
37	NC	/
38	LDE	DEN
39	NC	/
40	LHSYNC	HSYNC
41	NC	/
42	LVSYNC	VSYNC
43	LBACKL	/
44	LVDDEN	VDDEN

TFT Flash Panel Support List

Size	Brand	Resolution	Model No.
5.7”	Data image	320x240	FG050701DSSWBG01
5.7”	Optrex	320x240	55264GD057J-FW-ABN
5.7”	TOSHIBA	320x240	LTA057A343F
5.7”	Sharp	320x240 (QVGA / VGA)	LQ057Q3DC02
5.7”	Kyocera	320x240 (QVGA / VGA)	TCG057QV1AC-G10
5.7”	PVI	320x240 (QVGA / VGA)	PD057VU4 /U5
5.7”	Data image	640x480	FG050710DSSWJG01/DG01
5.7”	Ampire	640x480	AM-640480GTMQW-T00H
5.7”	URT	640x480	UMSH-8004MD-T
5.7”	Sharp	640x480	LQ057V3DG01
5.7”	CPT	640x480	CLAA057VA01
6.4”	PVI	640x480	V16C6448AC
6.4”	LG-PHILIPS	640x480	LB064V02
6.4”	PVI	640x480	PD064VT2 /VT4 /VT5
6.4”	Sharp	640x480	LQ064V3DG01
7”	AUO	800x480	C070VW02V0
7”	Data image	800x480	FG0700A0DSSWBG01
7”	LG-PHILIPS	800x480 (TFT 24 bits)	LB070WV1
7”	HITACHI	800x480	TX18D57VM2BAA
7”	Samsung	800x480	LMS700KF05
7”	PVI	800x480	PM070WL4
7”	URT	800x480	UMSH-8173MD-1T
7”	CHI HSIN	800x480	LW700AT9309
8”	Sharp	640x480	LQ080V3DG01

Size	Brand	Resolution	Model No.
8”	AUO	800x600 (TFT 24bits)	A080SN01 V0
8.4”	Sharp	800x600	LQ084S3DG01
10.4”	PVI	640x480	PD104VT1/VT2
10.4”	NEC	640x480	NL6448AC33-18
10.4”	NEC	640x480	NL6448AC33-29
10.4”	NEC	640x480	NL6448BC33-59
10.4”	Sharp	640x480	LQ104V1DG51/DG61
10.4”	Sharp	640x480	LQ10d368
11”	Sharp	800x480	LQ110Y3DG01
12.1”	NEC	800x600	NL8060BC31-01

Flat Panel Hardware Setting

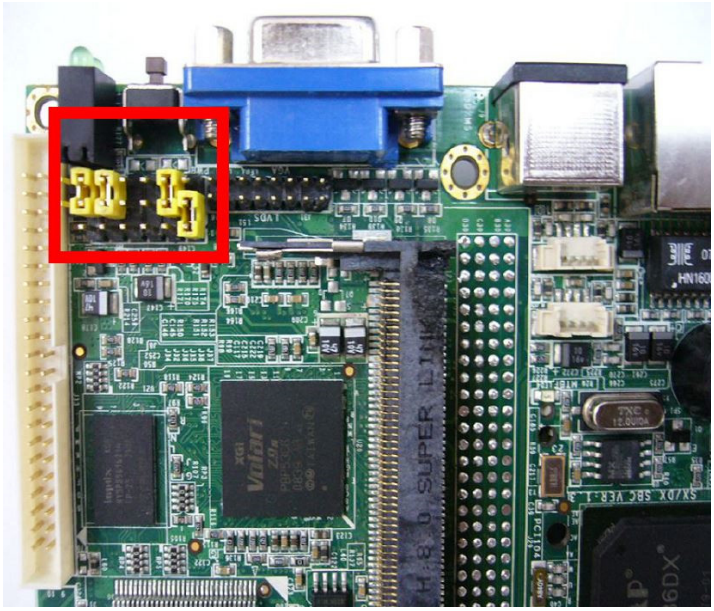
The VDX-6326RD-NF offers the Hardware setting for the various TFT LCD Flat Panels support and please make sure the jumper setting (J32~J38) before you connect the LCD.

Display Type Setup

	LCD	
Connector	**1-2**	**2-3**
J32		C
J34		C
J35	X	X
J36	X	X
J37	C	
J38		C

C: Close

X: Open



Flat Panel Wiring and Lighting

Hardware
Before you connect the TFT LCD Flat Panel with Vortex86DX-6326RD-NF, please make sure that the input Voltage of LCD is 3.3V or Not

BIOS
Please contact or e-mail our regional sales to get the special BIOS for the any TFT LCD Flat Panels.

Wiring LCD Cable
Please refer to Page 23 (J33: LCD connector) and Page 34~39. Or for more LCD lighting and integration service, please contact our regional sales or mail to info@icop.com.tw if you have any questions.

TCP/IP Library for DOS Real Mode

DSock is a TCP/IP library for DOS real mode, which is used by RSIP. It provides simple C functions for programmer to write Internet applications. ICOP also provide Internet examples using DSock: BOOTP/DHCP, FTP server, SMTP client/server, HTTP server, TELNET server, Talk client/server, etc.

DSock provides a lot of example source code. Programmer can add Internet functions to their project easily and save development time. With a utility "MakeROM", programmer also can make a ROM image to fit their application, those examples can be seen in the following Application systems: Mity-Mite Serial Server, Web Camera Tiny Server and RSIP Serial Server.

DSock is free for All ICOP products using M6117D/Vortex86/Vortex86SX/Vortex86DX CPU and ICOP also provide the business version of DSock for those customers who are using other x86 CPUs.
If you would like to use DSock or business version of DSock, Please mail to info@icop.com.tw or contact your regional sales.

Please download the trial DSock software and Utilities from our website:
http://www.dmp.com.tw/tech/dmp-lib/dsock/

BIOS Default Setting

If the system cannot be booted after BIOS changes are made, Please follow below procedures in order to restore the CMOS as default setting.

- Press **"End"** Key, when the power on

- Press **<Del>** to enter the AMI BIOS setup
- Press **"F9"** to Load Optimized Defaults
- Press **"F10"** to Save configuration changes and exit setup

Warranty

This product is warranted to be in good working order for a period of one year (12 months) from the date of purchase. Should this product fail to be in good working order at any time during this period, we will, at our option, replace or repair it without additional charge except as set forth in the following terms. This warranty does not apply to products damaged by misuse, modifications, accident or disaster. Vendor assumes no liability for any damages, lost profits, lost savings or any other incidental or consequential damage resulting from the use, misuse of, originality to use this product. Vendor will not be liable for any claim made by any other related party. Return authorization must be obtained from the vendor before returned merchandise is accepted. Authorization can be obtained by calling or faxing the vendor and requesting a Return Merchandise Authorization (RMA) number. Returned goods should always be accompanied by a clear problem description. Should you have questions about warranty and RMA service, please contact us directly.

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