



SOM304D3 **System-on-Module**

DM&P Vortex86DX3
1GHz processor

Ver. 1.0

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Revision History

Revision	Date	Remark
Ver. 1.0	November, 2017	First Version Released

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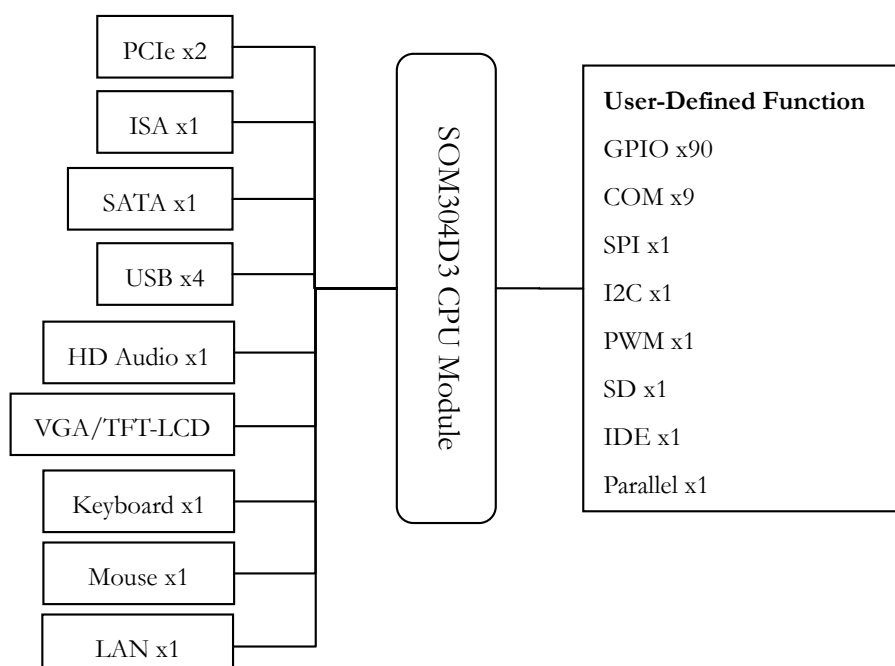
1 General Information

1.1 Overview

The SOM304D374EINE1 module is a 70 x 70 mm x 10.5mm 304-pin System-On-Module which is based on DMP Vortex86DX3 1GHz SoC, available in single and dual core version with 1 or 2GB DDR3 RAM and varieties of I/Os, providing suitable and balanced computing performance to many industrial usages.



1.2 Block diagram



1.3 Specifications

Processor	DM&P SoC CPU Vortex86DX3 1GHz L1:16K I-Cache, 16K D-Cache, L2 Cache:256KB				
System Memory	1/2GB DDR3 Onboard				
Watchdog Timer	Software programmable from 30.5μ sec. to 512 sec. x2 sets				
Display	Integrated 2D VGA chip with dual display support (VGA+TFT-LCD) VGA: Maximum resolution up to 1920x1080 @60Hz TFT-LCD: Maximum resolution up to 1024x768 @60Hz				
LAN	Integrated 10/100Mbps Ethernet x1				
I/O Interface	PCIe (Ver1.1) x2ISA (16-bit) x1 SATA (Ver1.0) x1USB (Ver2.0) x4 HD Audio x1PS/2 Mouse x1 PS/2 Keyboard x1				
I/O for User's Definition	Port	Functions			
	P0	GPIO-P0	COM5	SPI	
	P1	GPIO-P1	COM6		
	P2	GPIO-P2	COM7		
	P3	GPIO-P3	COM8	I ² C	
	P4	GPIO-P4	COM1		
	P5	GPIO-P5	COM2	PWM	
	P6	GPIO-P6	COM3	SD	IDE
	P7	GPIO-P7	COM4		
	P8	GPIO-P8	COM9	PRINTER	
	P9	GPIO-P9			
Power Requirement	Single Voltage +5V @1300mA (Typical)				
Weight	25g				
Dimensions	70 x 70 x 10.5mm (Without cover)				
Operating Temp.	-20°C to +70°C				
Operating System Support	Free DOS, DOS 6.22, PCDOS 7.1, DR-DOS, x-DOS, OS/2, Windows7 Windows Embedded Standard 7, Windows Embedded Compact 7, Windows Embedded CE6.0, Windows XP Professional, Windows XP Embedded, POS Ready(WePOS), Embedded Linux, QNX, VxWorks, and FreeBSD				

1.4 Ordering Information

Part Number	Product Description
SOM304D374EINE1-HS	Vortex86DX3 304-pin CPU Module with 1GB DDR3
SOM304D375EINE1-HS	Vortex86DX3 304-pin CPU Module with 2GB DDR3,

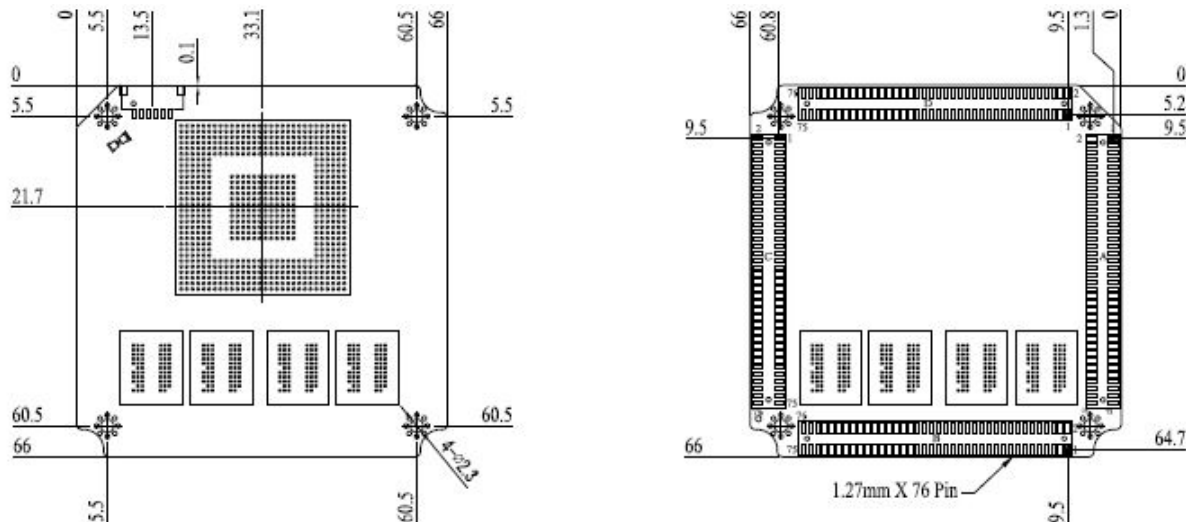
Boards for Function Test on SOM304D3 CPU

Part Number	1GB RAM	2GB RAM	TOUCH FUNCTION	DUAL CORE	COMPACT FLASH
VDX3-6726-1G	V				
VDX3-6726-2G		V			
VDX3-6726-2C-1G	V			V	
VDX3-6726-2C-2G-		V		V	
VDX3-6726-1G-T	V		V		
VDX3-6726-2G-T		V	V		
VDX3-6726-2C-1G-T	V		V	V	
VDX3-6726-2C-2G-T		V	V	V	
CABLE-SET-6726	RS232(2.0) x4, GPIO(2.0) x1, USN(2.0) x2, PRINT(2.0) x1, Audio Line x2, YKB x1 NET4X2(2.0) x2				
VDX3-6724-1G	V				
VDX3-6724-2G		V			
VDX3-6724-2C-1G	V		V		
VDX3-6724-2C-2G		V	V		
VDX3-6724-CF-1G	V				V
VDX3-6724-2C-CF-1G	V		V		V
VDX3-6724-CF-2G		V			V
VDX3-6724-2C-CF-2G		V	V		V
CABLE-6724-SET	GPIO (2.54) x1 RS232(2.54) x1, Audio Line x2, YKB x1				
CABLE-6724-CF	RS232(2.54) x1, Audio Line x2, YKB x1				

For more design reference, please refer to [Appendix](#) or contact info@icop.com.tw.

2 Hardware Information

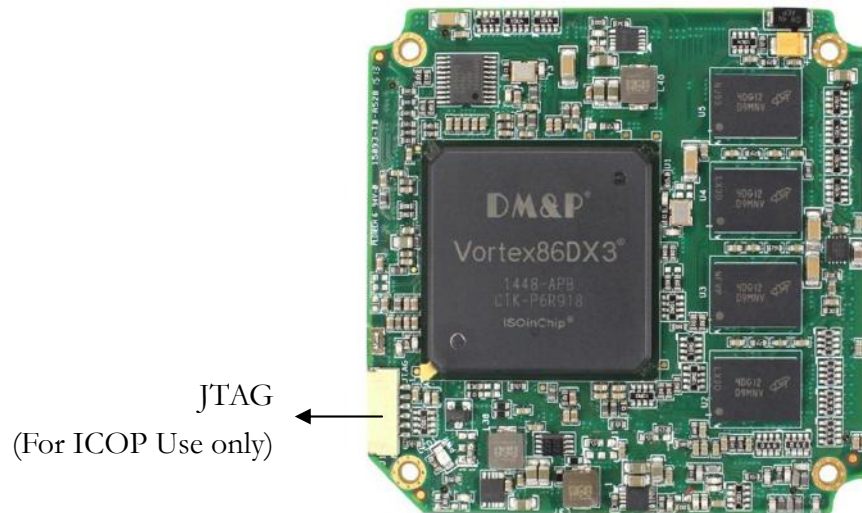
2.1 Module Dimension



2.2 Connectors on the carrier board (for module)

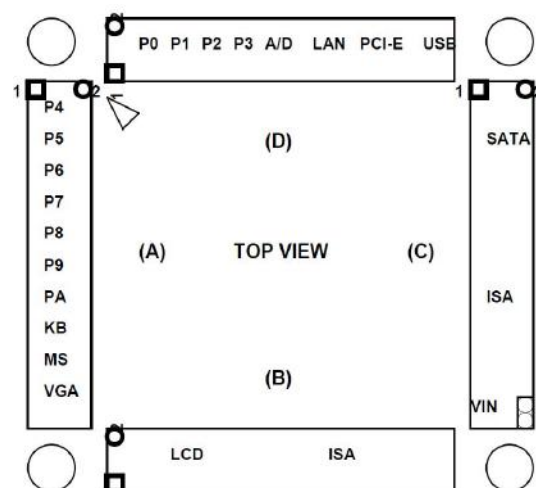
Part Number	Description
PH*238(1.27)-5.3MM	Male Connector for SOM304 SX/DX/DX2/DX3/MX+ Development Board (4 pcs are required for each SOM304 Module)

2.3 Module Outline



2.4 Pin Assignments & Jumper Settings

2.4.1 Pin Assignment



Pin#	Single Name	Pin#	Single Name
A1	P4 (Depend on User's Definition)	A2	P4 (Depend on User's Definition)
A3		A4	
A5		A6	
A7		A8	
A9	P5 (Depend on User's Definition)	A10	P5 (Depend on User's Definition)
A11		A12	
A13		A14	
A15		A16	
A17	GND	A18	GND
A19	P6 (Depend on User's Definition)	A20	P6 (Depend on User's Definition)
A21		A22	
A23		A24	
A25		A26	
A27	P7 (Depend on User's Definition)	A28	P7 (Depend on User's Definition)
A29		A30	
A31		A32	
A33		A34	
A35	GND	A36	GND
A37	P8 (Depend on User's Definition)	A38	P8 (Depend on User's Definition)
A39		A40	
A41		A42	
A43		A44	
A45	P9 (Depend on User's Definition)	A46	P9 (Depend on User's Definition)
A47		A48	
A49		A50	
A51		A52	
A53	GND	A54	GND
A55	HD_RST#	A56	HD_SDI
A57	HD_SDO	A58	HD_SYNC
A59	HD_BCLK	A60	P_STB#
A61	TX_DEN2	A62	TX_DEN1
A63	RESET	A64	SPEAKER
A65	MSCLK	A66	KBCLK
A67	MSDATA	A68	KBDAT
A69	HSYNC	A70	GND
A71	VSYNC	A72	ROUT
A73	DDCDAT	A74	GOUT
A75	DDCLK	A76	BOUT

Pin#	Single Name	Pin#	Single Name
B1	GND	B2	GND
B3	FPD0	B4	FPD1
B5	FPD2	B6	FPD3
B7	FPD4	B8	FPD5
B9	FPD6	B10	FPD7
B11	FPD8	B12	FPD9
B13	FPD10	B14	FPD11
B15	FPD12	B16	FPD13
B17	FPD14	B18	FPD15
B19	GND	B20	GND
B21	FPD16	B22	FPD17
B23	FPD18	B24	FPD19
B25	FPD20	B26	FPD21
B27	FPD22	B28	FPD23
B29	FP1HS	B30	FP1VS
B31	FP1DE	B32	FP1DET
B33	N/A	B34	N/A
B35	FP1CLK	B36	N/A
B37	DDC1CLK	B38	DDCADAT
B39	FPENBLT	B40	FPENVDD
B41	FPENVEE	B42	N/A
B43	GND	B44	GND
B45	IRQ15	B46	SBHE
B47	IRQ14	B48	LA23
B49	DACK0	B50	LA22
B51	DRQ0	B52	LA21
B53	DACK5	B54	LA20
B55	DRQ5	B56	LA19
B57	DACK6	B58	LA18
B59	DRQ6	B60	LA17
B61	DACK7	B62	MEMR
B63	DRQ7	B64	MEMW
B65	SD8	B66	SD9
B67	SD10	B68	SD11
B69	SD12	B70	SD13
B71	SD14	B72	SD15
B73	GPCS0	B74	GPCS1
B75	GND	B76	GND

Pin#	Single Name	Pin#	Single Name
C1	SATA_TX-	C2	SATA_RX-
C3	SATA_TX+	C4	SATA_RX+
C5	GND	C6	GND
C7	VBATT	C8	IOCHCK
C9	RSTDRV	C10	SD7
C11	IRQ9	C12	SD6
C13	DRQ2	C14	SD5
C15	OWS	C16	SD4
C17	SMEMW	C18	SD3
C19	SMEMR	C20	SD2
C21	IOW	C22	SD1
C23	IOR	C24	SD0
C25	DACK3	C26	IOCHRDY
C27	DRQ3	C28	AEN
C29	DACK1	C30	SA19
C31	DRQ1	C32	SA18
C33	REFRESH	C34	SA17
C35	GND	C36	SA16
C37	SYSCLK	C38	SA15
C39	IRQ7	C40	SA14
C41	IRQ6	C42	SA13
C43	IRQ5	C44	SA12
C45	IRQ4	C46	SA11
C47	IRQ3	C48	SA10
C49	DACK2	C50	SA9
C51	TC	C52	SA8
C53	BALE	C54	SA7
C55	OSC	C56	SA6
C57	MEMCS16	C58	SA5
C59	IOCS16	C60	SA4
C61	IRQ10	C62	SA3
C63	IRQ11	C64	SA2
C65	IRQ12	C66	SA1
C67	GND	C68	SA0
C69	SYS-FAIL-IN	C70	SYS-FAIL-OUT
C71	SYS-SW-IN	C72	SYS-GPCS-IN
C73	VCC	C74	GND
C75	VCC	C76	GND

Pin#	Single Name	Pin#	Single Name
D1	P0 (Depend on User's Definition)	D2	P0 (Depend on User's Definition)
D3		D4	
D5		D6	
D7		D8	
D9	P1 (Depend on User's Definition)	D10	P1 (Depend on User's Definition)
D11		D12	
D13		D14	
D15		D16	
D17	GND	D18	GND
D19	P2 (Depend on User's Definition)	D20	P2 (Depend on User's Definition)
D21		D22	
D23		D24	
D25		D26	
D27	P3 (Depend on User's Definition)	D28	P3 (Depend on User's Definition)
D29		D30	
D31		D32	
D33		D34	
D35	GND	D36	GND
D37	ADC_0	D38	ADC_1
D39	ADC_2	D40	ADC_3
D41	NCD1	D42	NCD3
D43	NCD2	D44	NCD4
D45	DUPLEX	D46	LINK/ATCIVE
D47	LANTX-	D48	LANRX-
D49	LANTX+	D50	LANRX+
D51	GND	D52	GND
D53	PE0_TX-	D54	PE0_RX-
D55	PE0_TX+	D56	PE0_RX+
D57	YPE0_CLK-	D58	YPE1_CLK-
D59	YPE0_CLK+	D60	YPE1_CLK+
D61	PE1_TX-	D62	PE1_RX-
D63	PE1_TX+	D64	PE1_RX+
D65	VCC3	D66	PCIRST-
D67	GND	D68	GND
D69	USBD3-	D70	USBD2-
D71	USBD3+	D72	USBD2+
D73	USBD1-	D74	USBD0-
D75	USBD1+	D76	USBD0+

3 Software Resources

3.1 ICOP Technical Resource Website

In the following website, you will find our latest user manuals, including OS support resources systems such as evaluation images for Windows Embedded Compact 7, Windows Embedded CE 6.0, Windows Embedded 5.0, and Windows XP Embedded (Win XPe). For details, please kindly visit the following link:

<http://tech.icop.com.tw/>

3.2 Vortex86 Processor Programming Guide

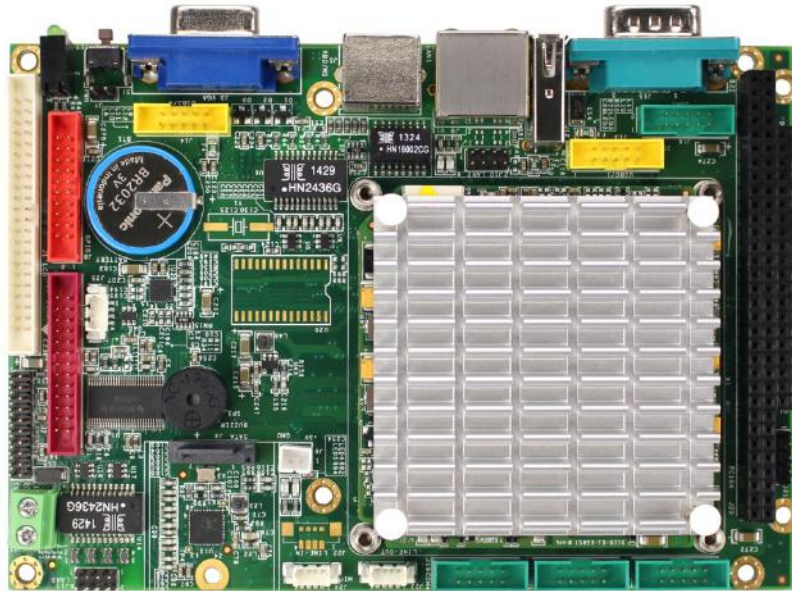
Vortex86 processor programming guide is for software programmers to build their programs more quickly and easily on Vortex86 processor.

For Vortex86DX3/DX2/EX software programming guide, please contact local suppliers or your technical support sales in ICOP or mail to

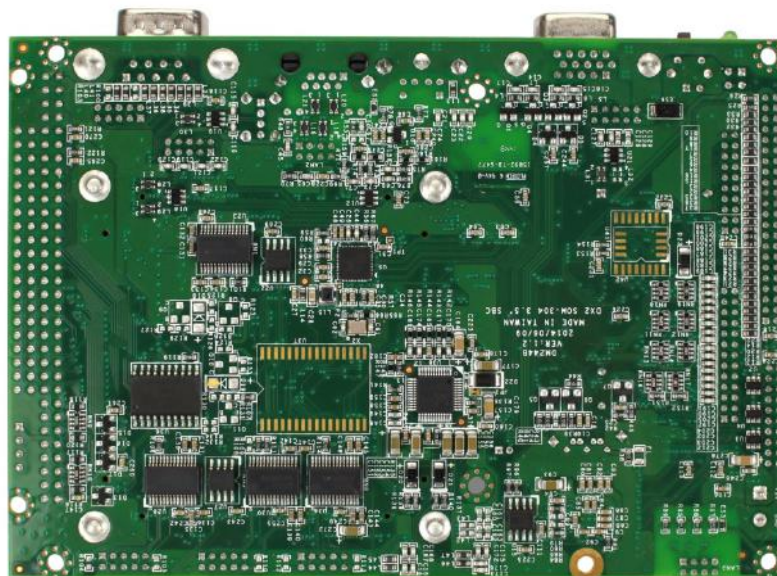
info@icop.com.tw

Appendix

Design Reference (VDX3-6726)



VDX3-6726 TOP VIEW



VDX3-6726 BOTTOM VIEW

Design Reference (VDX3-6724)



VDX3-6726 TOP VIEW



VDX3-6726 BOTTOM VIEW

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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