

孕龍科技股份有限公司 Zeroplus Technology Co., Ltd.

# Instrument Business Department

# LCD 12864 Specification

Version : V1.02



2F., No.123,Jian Ba Rd, Chung Ho City, Taipei Hsien, R.O.C. Tel: 886-2-66202225 Fax: 886-2-22234362

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### **1** Software Installation

Please install the software as the following steps:

\* Remark: 1. The installation steps for all Buses are the same; you can complete the installation by following procedures. The following is an example on how to install SSI Bus.

 $\Re$  Remark: 2. We haven't additional notice for you, when there is any modification of the module specification. If there is some unconformity caused by module version upgrade, users should take the module software as the standard.

#### STEP 1. **Install Bus Module** Special Bus SSI Module\_v10300 File Edit View Favorites Tools Help 🗲 Back 🔻 🐑 🕤 🏂 🔎 Search 🛛 Folders 🛛 🞹 🗸 🗸 🔁 Go Address 🗁 E:\Special Bus SSI Module\_v10300 \* File and Folder Tasks English Help 💋 Make a new folder 🔕 Publish this folder to the Autorun Readme\_English Setup Information Web Text Document 1 KB 5 KB 😂 Share this folder Readme\_Simplified Readme\_Traditional Text Document \$ Other Places 4 KB 4 KB 🥪 Local Disk (E:) Setup Setup Applicat ZEROPLUS 📋 My Documents Chared Documents 🧕 My Computer 🧐 My Network Places \* Details







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#### **STEP 4.** Select **I accept the terms in the license agreement**, and then press **Next**.

1	Special Bus SSI Module - InstallShield Vizard	×
	License Agreement Please read the following license agreement carefully.	
	I ICENSE ACREEMENT	~
	LICENSE AGREENIENI	
	IMPORTANT-READ CAREFULLY : This LICENSE AGREEMENT is	
	entered into effect between ZEROPLUS Technology Co., Ltd. (hereinafter "ZEROPLUS") and Customer (Individual or Registered Company).	
	Whereas, ZEROPLUS owns a software product, including computer software as a package product for certain computer products, relevant intermediary, product information, electronic file and internet on-line	
	downloadable software. electronic file and service. known as " ZEROPLUS	~
<	I accept the terms in the license agreement	
	$\bigcirc$ I $\underline{d}$ o not accept the terms in the license agreement	
Ir	nstallShield	
	< <u>B</u> ack <u>N</u> ext > Cancel	



#### **STEP 5.** Fill in users' information in the below dialog box and click **Next**.

🛃 Special Bus SSI Module - InstallShield Vizard	
Customer Information	44
	and the second se
User Name:	
sunshine	
Organization:	
zeroplus	
Install this application for:	
<ul> <li>Anyone who uses this computer (all users)</li> </ul>	
Only for me (sunshine)	
InstallShield	
< <u>B</u> ack <u>N</u> ext >	Cancel

#### **STEP 6.** Select **Complete** and then click **Next**.

🙀 Special Bu	s SSI Module - InstallShield Vizard 🛛 🚺 🚺	<
Setup Type Choose the set	up type that best suits your needs.	
Please select a	setup type.	
⊙ <u>Complete</u>	All program features will be installed. (Requires the most disk space.)	
Cu <u>s</u> tom	Choose which program features you want installed and where they will be installed. Recommended for advanced users.	
InstallShield ———	< <u>B</u> ack <u>N</u> ext > Cancel	)



#### **STEP 7.** Click **Install** to begin the installation.

🛃 Special Bus SSI Module - InstallShield Wizard	×
Ready to Install the Program The wizard is ready to begin installation.	
Click Install to begin the installation.	
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.	
InstallShield	_
< <u>B</u> ack Install Cancel	

#### **STEP 8.** Click **Finish** to complete the installation.

🔂 Special Bus SSI Modu	le - InstallShield Wizard 🛛 🛛 🔀
	nstallShield Wizard Completed
	The InstallShield Wizard has successfully installed Special Bus
	< <u>B</u> ack <b>Finish</b> Cancel



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### **2** User Interface

Please refer to the below images to select options of setting LCD12864 module.

#### LCD 12864 Configuration Dialog Box

SPI	ECIAL BUS	LCD12864 SETU	P:Bus1					
Co	Configuration Package Register							
1	-Pin Assignm	ent						
	RS/CS:	A0 💌	DB[0]:	A3	~	DB[4]:	A7	J
	WR/SID:	A1 💌	DB[1]:	A4	~	DB[5]:	BO	•
	E/SCLK:	A2 💌	DB[2]:	A5	~	DB[6]:	B1	J
	Paral:	lel C Serial	DB[3]:	A6	$\overline{\mathbf{v}}$	DB[7]:	B2	•
	-Initial Com	mand Settings		Seri	al Settings			
	Basic     Second Control     Second Control	C Extensi	on		C Single	C	Network	
	-Parallel Se Bit Widt)	ettings h: 4 Bit	•		Sampling Mo	de: R	ISING 🔽	
	-Bus Color-							
	IR	SYNC	COMMAND		. BUSY		WRITE	
	DR	DATA	ADDRESS		· · AC		READ	••
				OK	Canc	el De	efault	Help

**Pin Assignment Settings:** There are two modes for setting the way of signal input, which are Parallel (Parallel signal) and Serial (Serial signal). Hitherto, RS/CS WR/SID E/SCLK DB0~DB7 have the different transmission modes, so they have the different modes of signal setting and the corresponding required signal channels.

**Initial Command Settings**: Select one of the command value from the Basic and Extension modes to set the initial command value.

Parallel Settings: Select the 8Bit or 4Bit to set the used channel amount of the parallel signal.

**Serial Settings:** Set the decoding mode of Serial (Serial signal) as Single or Network. And the sampling mode is RISING or FALLING.

**Bus Color:** Set the color of the Bus package.



#### LCD 12864 Package Dialog Box



In the Package part, users can vary the package color as their requirements and decide whether to show the item in the package list.

#### LCD 12864 Register Dialog Box

SPECIAL BUS LCD12864 SETUP:B	151	X
Configuration Package Register		
SPECIAL BUS LCD12864 SETUP: Bus1         Configuration       Package         Register         Congratulation LCD12864 decoding function has been activated!         If you have questions about operating software please follow the appropriate instructions below.Our technical support team will be happy to answer any questions you have.         >> By phone:       Tel:886-2-66202225         >> Applications through EMail:       service_2@reroplus.com.tw         >> Website:       http://www.zeroplus.com.tw         Copyright(C) 1997-2008 ZEROPLUS TECHNOLOGY CO;LTD		
Congratulation LCD12864 dec	oding function has been activated!	
If you have questions about opera instructions below.Our technical questions you have	ting software please follow the appropriate support team will be happy to answer any	
1		
>> By phone:	Tel:886-2-66202225	
>> Applications through EMail:	service_20zeroplus.com.tw	
>> Website:	http://www.zeroplus.com.tw	
Copyright(C) 1997-2008 ZEROPLUS T	ECHNOLOGY CO;LTD	
	OK Cancel Default Melp	

There is Zeroplus company information. If you have any questions about software operations, you can contact Zeroplus by Telephone or Email.



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## **3** Operating Instructions

**STEP 1.** Group the unanalyzed channels into **Bus1** by pressing the **Right Key** on the mouse.

Bus/Signs	1 Trigger E	Enable -	Bus/Signal	Trigger	Enable
		<b>•</b>	Busi		-
	1 A1		AD AL		
- 1	Sampling Setup		🖌 A1 A1		
🧭	EUS Bus Property		🖌 🖌 A2 A2		
	Group into Bus	Ctrl+G	🧭 🔥 A3		
	Ungroup from Bur	8	🖌 🗚 🗛		
	Add Signal		🖌 🖊 AS		
	Copy Signal Delete Signal		🖌 🖌 AB		
	Delete All Signals		🖌 🖌 AT		
	Restore Default Si;	gnals	<b>BO</b> BC		
	Format Row	•	🖌 B1 B1		
	nename	201128	<b>/ B2</b> B2		
	3 B3		<b>B3</b> B3		
	14 B4		PI DI		

STEP 2. Select Bus1, then press Right key on the mouse to list menu, then press Bus Property or Bus bar on the toolbar to open Bus Property dialog box.





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**STEP 3.** For Special Bus LCD12864 Parameters Configuration, select Special Bus, and then choose **ZEROPLUS LA LCD12864 MODULE V1.01**. Next click **Parameters Configuration** to open **Parameters Configuration** dialog box.

Bus Property					
General Bus Setting C GENERAL BUS Color Config					
Special Bus Setting    Special Bus Setting   Parameters Config					
C ZEROPLUS LA FLEXRAY 2.1A MODULE V1.01 C ZEROPLUS LA HDQ MODULE V2.03 C ZEROPLUS LA IIC MODULE V1.05 C ZEROPLUS LA IIS MODULE V1.04 C ZEROPLUS LA IRDA MODULE V1.03					
C ZEROPLUS LA STAG 2.0 MODULE V1.01 C ZEROPLUS LA LCD12864 MODULE V1.01 C ZEROPLUS LA LCD1602 MODULE V1.01 C ZEROPLUS LA LIN2.1 MODULE V2.03 C ZEROPLUS LA LIN2.1 MODULE V2.03					
Use the DsDp Other More Module: http://www.zeroplus.com.tw					
OK Cancel Help					

**STEP 4.** Press Register tab to type the serial key number of LCD 12864. Then, press **Register.** 

SPECIAL BUS LCD12864 SETUP:Bu	ıs1	×					
Configuration Package Register							
The LCD12864 bus decoding function is optional purchased item. Welcome to purchase its serial key to activate this function for your necessary. Enter serial key:							
If you ordered software or have q please follow the appropriate ins respond to your enquiry as soon a	nestions about ordering software tructions below.Our sales team will s possible.						
>> By phone:	Tel:886-2-66202225						
>> Applications through EMail:	service_2@zeroplus.com.tw						
>> Website:	http://www.zeroplus.com.tw						
Copyright(C) 1997-2008 ZEROPLUS T	SCHNOLOGY CO;LTD						
	Register Cancel Default Help						



**STEP 5.** Click Configuration to open the configuration dialog box, and then set channels for LCD12864 in Pin Assignment section.

SPECIAL BUS LCD12864 SETUP:Bus1										
Configuration Package Register										
	-Pin Assignm	ent								
	RS/CS:	A0 💌	DB[0]:	A3 💌	DB[4]:	A7 💌				
	WR/SID:	A1 💌	DB[1]:	A4 💌	DB[5]:	B0 💌				
	E/SCLK:	A2 💌	DB[2]:	A5 💌	DB[6]:	B1 💌				
	🖲 Parali	lel 🔿 Serial	DB[3]:	A6 🔻	DB[7]:	B2 💌				
	-Initial Com	mand Settings		Serial Setting	5					
	• Basic	C Extension	n	C Single	۲	Network				
Parallel Settings Bit Width: 4 Bit  Sampling Mode: RISING										
	-Bus Color-									
	IR		COMMAND	BUS	ч	WRITE	••			
	DR	DATA	ADDRESS	. AC		READ	••			
				OK Can	cel De	fault	Help			

#### **STEP 6.** Set the parallel or serial mode for signal input mode

SPECIAL BUS LCD12864 SETUP:Bus1									
Configuration Package Register									
Pin Assignment									
RS/CS: A0 ▼	DB[0]:	A3    DB[4]: A7							
WR/SID: A1	DB[1]:	A4 V DB[5]: B0 V							
E/SCLK: A2	DB[2]:	A5    DB[6]: B1							
🖲 Parallel 🛛 C Serial	DB[3]:	A6 V DB[7]: B2 V							
Initial Command Settings		Serial Settings							
🖲 Basic 🕜 Extension		C Single 🕼 Network							
Parallel Settings Bit Width: 4 Bit 💌	Sampling Mode: RISING 💌								
-Bus Color									
IR SYNC	COMMAND	D BUSY WRITE							
DR DATA	ADDRESS	S AC READ	••						
		OK Cancel Default	Help						





SPECIAL BUS LCD12864 SETUP	:Busl				
Configuration Package Register					
Pin Assignment					
RS/CS: AO	DB[0]:	A3 💌	DB[4]:	A7	-
WR/SID: A1 💌	DB[1]:	A4 💌	DB[5]:	во	- I
E/SCLK: A2	DB[2]:	A5 💌	DB[6]:	B1	.
🖲 Parallel 🔿 Serial	DB[3]:	A6 💌	DB[7]:	B2	
-Initial Command Settings		-Serial Settings	5		
🖲 Basic 🛛 🔿 Extension	n	C Single	6	Network	
Parallel Settings Bit Width: 4 Bit	]	Sampling M	Node:	ISING 🔽	
Bus Color					
IR SYNC	COMMAND	BUS	Y	WRITE	
DR DATA	ADDRESS	. AC		READ	••
		OK Can	cel D	efault	Help

**STEP 8.** The signal line can be set as 8Bit (8-line input) or 4Bit (4-line input) under the input mode of parallel signal.

SP	SPECIAL BUS LCD12864 SETUP:Bus1										
C	Configuration Package Register										
	-Pin Assignm	ent —									
	RS/CS:	A0	<b>•</b>	DB[0]:	A3	~	DB[4]:	A7	-		
	WR/SID:	A1	•	DB[1]:	A4	v	DB[5]:	BO	•		
	E/SCLK:	A2	•	DB[2]:	A5	v	DB[6]:	B1	•		
	💿 Parali	lel (	Serial	DB[3]:	A6	v	DB[7]:	B2	•		
	-Initial Com	mand Set	tings —		Seri	al Settings					
	🖲 Basic		🔿 Extensi	on		C Single	C	Network			
	-Parallel Se Bit Widt	ttings— h:	4 Bit	-		Sampling Mo	ode: 🕅	ISING 💌	]		
	-Bus Color-				-						
	IR	. SYNC		COMMAND		. BUSY		WRITE			
	DR	. DATA		ADDRESS		. AC		READ			
					OK	Cane	el De	fault	Help		





SPECIAL BUS	LCD12864	SETUP: B	jus l						
Configuration Package Register									
Pin Assign	nent								
RS/CS:	A0	·] 1	DB[0]:	Å3	<b>T</b>	DB[4]:	A7	•	
WR/SID:	A1 •	· i	DB[1]:	A4	<b>T</b>	DB[5]:	BO	•	
E/SCLK:	A2 -	·] :	DB[2]:	A5	<b>v</b>	DB[6]:	B1	•	
🖲 Paral	lel C Se	rial I	DB[3]:	A6	~	DB[7]:	B2	•	
-Initial Com	nmand Setting	s		Seri	al Settings				
• Basic	С E	xtension			C Single	e	Network		
Parallel Settings       Bit Width:       4 Bit   Sampling Mode:       RISING									
Bus Color-									
IR		· · c	COMMAND		. BUSY		WRITE	•	
DR	. DATA	· .	DDRESS		. AC		READ		
				OK	Canc	el De	fault	Help	

#### **STEP 10.** Set RISING or FALLING as the sampling mode.

SPECIAL BUS LCD12864 SETUP:Bus1										
Configuration Package Register										
Pin Assignment				- I						
RS/CS: AO	DB[0]:	A3 👻	DB[4]: A7 💌							
WR/SID: A1	DB[1]:	A4 💌	DB[5]: BO 💌							
E/SCLK: A2	DB[2]:	A5 💌	DB[6]: B1 💌							
📀 Parallel 🛛 C Serial	DB[3]:	A6 💌	DB[7]: B2 💌							
Initial Command Settings		Serial Settings-								
Basic C Extension		C Single	🙆 Network							
Parallel Settings Bit Width: 4 Bit 💌	[	Sampling Mod	e: RISING 🔽							
Bus Color										
IR SYNC	COMMAND	BUSY	··· WRITE	•••						
DR DATA	ADDRESS	· · AC	READ	•••						
		OK Cancel	Default Hel	p						



<b>STEP 11.</b>	Set the color of the Bus package.
-----------------	-----------------------------------

SPECIAL BUS LCD12864 SETUP	Busl								
Configuration Package Register									
-Pin Assignment									
RS/CS: <u>A0</u> ▼	DB[0]:	A3 💌	DB[4]: A7 💌						
WR/SID: A1 💌	DB[1]:	A4 💌	DB[5]: BO 💌						
E/SCLK: A2	DB[2]:	A5 💌	DB[6]: B1 💌						
🖲 Parallel 🔿 Serial	DB[3]:	A6 💌	DB[7]: B2 💌						
Initial Command Settings		Serial Settings-							
• Basic C Extension		C Single	Network						
Parallel Settings Bit Width: 4 Bit	]	Sampling Mo	de: RISING 💌						
-Bus Color									
IR SYNC	COMMAND	BUSY	WRITE	••					
DR DATA	ADDRESS	AC	··· READ						
		OK Cance	l Default He	elp					

**STEP 12.** Following pictures show the completion of the Bus decoding and package list. The Trigger condition is set as Either Edge; the Memory depth is 512K; the Sampling frequency is 50MHz

ZEROPLUS LAP-	321000 <del>0</del> -	-A(S/N:0	000000-0000) - [LCD12864]	- <b>-</b> X
💭 File Bus/Signal	T <u>r</u> igger	Run/Stop	Data Tools Window Help	- @ ×
🗅 🗲 🖶 🎒	ų 🕮 🏘	$\phi \mathbf{P} \phi \mathbf{T} \phi^{\mathbf{I}}$	🕮 🔟 🕨 🖬 🕺 🚺 🐨 50MHz 🗾 🚥 🎋 50% 🗸 🐝 Page 1 🔹 Count 1	•
🚯 🚯 📓	III 🥵	N 18 0	🖤 🎬 🛛 🖉 🗸 羔 0.8278549! 🔽 🎇 😹 👫 👫 👫 🕌 🕌 🌬 👌 🔯 👺 🌺 Height 30 💽 Trigger 1	Delay 1
Scale:120.794112 Total:524288		Displ Trigg	lay Pos:109363         A Pos:-261135         ▼         A - T = 261135         ▼         A - B = 30         ▼           ger Pos:0         B Pos:-261105         ▼         B - T = 261105         ▼         Compr-Rate:No	
Bus/Signal	Trigger	Enable	105947.08 107551.051 108155.021 108758.992 109362.968 109966.938 110570.904 111174.874 111778.845 11	2382. 815
		-	OXF7 WRITE : 0X11 UNKNOW BUSY UNKNOW 0X71 UNKNOW	WRITI
🖌 🖌 AC	x			=
🖌 A1 A.	NU22 Mint			
🥖 A2 A2	$\boxtimes$			
🧭 A3 A3	$\boxtimes$			
🖌 🗚 🗛	$\boxtimes$			
🖌 A5 A5	$\square$			
🖌 🖌 AE	$\boxtimes$			
🖋 AT AT	$\boxtimes$			
🖌 BO BC	$\boxtimes$			
🖌 B1 B1	$\mathbf{X}$			
🖌 B2 B2				~
< >	<	< ) >		
Ready			End! D	EMO



#### Following picture shows the waveform display with the package list.

STATE	U-A(S/N:000000-0000)	- [LCD12864]					_ 7 🗙
🐔 <u>F</u> ile B <u>u</u> s/Signal T <u>r</u> igger	Run/Stop Data Tools W	ndow <u>H</u> elp					_ 8 ×
🗅 🧀 🖪 🎒 🕮 🕰 👯	} 🐢 秤 📲 🔟 🕨 🕨	• 🔲 📲 512k 🛨 🙀	™ 50MHz ▼	🏧 🎋 <b>50% 🔹 </b>	Page 1	Count 1	<b>~</b>
🚯 🚯 📾 📟 🍠	k 🕅 🥎 🎞 🖾 🗸	🐰 0.8278549! 🕶 🙀	- ▲ A¥ B¥ T¥ +¥ Bar Bar Bar Bar Bar	🙀 रिक को 🛛 🐻 🗳	Height 30	▼ Trigger	Delay 1
Scale: 120. 794112	Display Pos:109363	A Pos:-26	1135 👻	A - T = 261135 ▼	A	- B = 30 ▼	
Total:524288	Trigger Pos:U	B Pos:-26	1105 🖵	B - T = 261105  ▼	C	ompr-Kate:No	
Bus/Signal Trigger	Enable 10694	7.08 107551.051 1081	55.021 108758.992	109362.963 109966.933	110570.904 11	1174.874 111778.	. 845   11238
Busi (LCD1:	• 🖾 • OXF7	WRITE : 0X11	UNKNOW /	BUSY	UNKNOW	0X71	UNKNOW
🖌 AD AC 🗙							=
🖌 🖌 🖌 🔪							-
- A2 A2 🔀					7		
A3 A3 🛛							_
- A4 A4							
🖌 A5 A5							
🖌 🖌 🖌							
AT AT							
<b>BO BO</b>							
🖌 B1 B1 🔀							
<b>B2</b> B2							
					1		>
× Setting Flash Expo	ort Synch Parameter						
Package # Na	me TimeStamp	RESET					<b>_</b>
7 Bus1(LC	CD12864) 62599	0×03					
Package # Na	TimeStamp	INPUT_MODE					
Backage #							
9 Bus1/LC	D12864] 98957	0X80					
Package # Na	me TimeStamp	MOVE					<b>•</b>
Ready	51000 N   100F19					End!	DEMO