

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

# Instrument Business Department

## J-K FLIP-FLOP Specification

Version: V1.00



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## **1** Software Installation

Please install the software as the following steps:

Remark: 1. The installation steps for all protocol analyzers are the same; you can complete the installation by following procedures. Following is an example on how to install protocol analyzer SSI.
 Remark: 2. We won't have additional notice for you, when there is any modification of the module specification. If there is some unconformity caused by the module version upgrade, users should take the module software as the standard.



#### STEP 1. Install Protocol Analyzer Module.







#### STEP 3. Click Next.



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

| 🙀 Protocol Analyzer SSI - InstallShield Wizard  |                      |
|---|----------------------|
| License Agreement<br>Please read the following license agreement carefully.   |                      |
| LICENSE AGREEMENT   |                      |
| IMPORTANT-READ CAREFULLY : This LICENSE AGREEMI<br>entered into effect between ZEROPLUS Technology Co., Ltd. (hereins<br>"ZEROPLUS") and Customer (Individual or Registered Company).   | ENT is<br>after      |
| Whereas, ZEROPLUS owns a software product, including comp<br>software as a package product for certain computer products, relevant<br>intermediary, product information, electronic file and internet on-line<br>downleadable software. electronic file and service, known as " ZEROF | nuter<br>t<br>PLUS 💌 |
| I do not accept the terms in the license agreement  | Print                |
| InstallShield   | Cancel               |



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

| 🙀 Protocol Analyzer SSI - InstallShield Wizard   |        |
|--|--------|
| Customer Information<br>Please enter your information.   |        |
| User Name:<br>sunshine   |        |
| Organization:<br>zeroplus  |        |
| Install this application for:  |        |
| <ul> <li>Anyone who uses this computer (all users);</li> <li>Only for me (sunshine)</li> </ul> |        |
| InstallShield  | Cancel |

## **STEP 6.** First, select **Complete** and then click **Next**.

| 🛃 Protocol 🗚                 | nalyzer SSI - InstallShield Wizard 🛛 🛛 🔀   |
|------------------------------|--|
| Setup Type<br>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<br>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.

| 🚰 Protocol Analyzer SSI - InstallShield Vizard   |               |
|--|---------------|
| <b>Ready to Install the Program</b><br>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. Cli<br>exit the wizard. | ick Cancel to |
|  |               |
| InstallShield  | Cancel        |

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

| 🙀 Protocol Analyzer | SSI - InstallShield Vizard   | $\mathbf{X}$ |
|---------------------|--|--------------|
|                     | InstallShield Wizard Completed   |              |
|                     | The InstallShield Wizard has successfully installed Protocol<br>Analyzer SSI. Click Finish to exit the wizard. |              |
|                     | < <u>B</u> ack <b>Einish</b> Cancel  |              |



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## 2 User Interface

In the configuration dialog box, please refer to the below images to select options of setting **J-K FLIP-FLOP MODULE**.

## J-K FLIP-FLOP Configuration Dialog Box

| PROTOCOL ANALYZER J-K FLIP-FLOP SETUP:Bus1               |  |  |  |  |
|--|--|--|--|--|
| Configuration Package Register                           |  |  |  |  |
| Element Type Pin Assignment                              |  |  |  |  |
| Element Select: Edging Trigger J-K FLIP-FLOP             |  |  |  |  |
| Sampling Mode: Rising Edge                               |  |  |  |  |
| Output Delay Settings                                    |  |  |  |  |
| Customize delay time higher limit: 50 ns (lower limit 0) |  |  |  |  |
| Protocol Analyzer Color                                  |  |  |  |  |
| 0  |  |  |  |  |
|  |  |  |  |  |
| OK Cancel Default Help                                   |  |  |  |  |

#### **Element Select:**

It can be set as Edging Trigger J-K FLIP-FLOP or Master-Slave FLIP-FLOP. **Sampling Mode:** 

It can be set as Rising Edge or Falling Edge.

#### **Output Delay Settings:**

Users can set the delay time in this part.

#### **Protocol Analyzer:**

Users can click the buttons to set the color as their requirements.



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#### **Custom Channel:**

| Pin       | Assig     | ment |   |                |              | ×      |
|-----------|-----------|------|---|----------------|--------------|--------|
| _In<br>_C | put<br>P: | A0   | • |                |              |        |
|           | CLR:      | A1   | • | PR:            | A2           | •      |
|           | ( ):      | A3   | • | , in 1         | A3           | ~      |
|           | ( к:      | A4   | • | Γ κ.           | A4           | -      |
| 0         | utput —   |      |   |                |              |        |
|           | Q:        | A5   | • | 🔲 Virtual outp | put decoding | g mode |
| ▼         | í Q:      | A6   | • |                |              |        |
|           |           | ок   |   | Cancel         | Defa         | ult    |

#### **Pin Assignment:**

1. Users can select the CLR, PR, J,  $\overline{J}$ , K,  $\overline{K}$ , Q and  $\overline{Q}$  channels and set them.

2. The  $\overline{J}$  will be automatically canceled when selecting the J. The J will be automatically canceled when selecting the  $\overline{J}$ . The selection of K and  $\overline{K}$  is the same as J and  $\overline{J}$ .

3. Users should select one of J and  $\overline{J}$  in the part of Input; the selection of K and  $\overline{K}$  is the same as J and  $\overline{J}$ .

4. When selecting **Virtual output decoding mode**, Q and  $\overline{Q}$  will be disabled.

5. When there are only three signal lines, CLR, PR, Q and  $\overline{Q}$  will be disabled. When the signal lines are more than three and less than seven and the selected channels reach the quantity of signal lines, the rest unselected channels can't be used. When the signal lines are not less than seven, all the channels can be used.



## J-K FLIP-FLOP Package Dialog Box

| PROTOCOL ANALYZ      | ER J-K FLIP-FLOP | SETUP:Bus1        |              |
|----------------------|------------------|-------------------|--------------|
| Configuration Packag | Register         |                   |              |
|                      |                  |                   |              |
| ltem                 | Color            |                   |              |
| Π                    |                  | - Package Length: | 1            |
| <b>1</b> • 0         |                  |                   |              |
| <b>⊡</b> 1           |                  |                   |              |
|                      |                  |                   |              |
| 🔽 DESCRIBE           |                  |                   |              |
|                      |                  |                   |              |
|                      |                  |                   |              |
|                      |                  |                   |              |
|                      |                  |                   |              |
|                      | 0                | Cancel            | Default Help |

1. In the package dialog box, users can choose displayed items and set protocol analyzer color according to their requirements.

2. Package Length: Users can set the length of the package.

## J-K FLIP-FLOP Register Dialog Box

| PROTOCOL ANALYZER J-K FLIP-F        | LOP SETUP:Bus1   | × |  |  |  |  |
|-------------------------------------|--|---|--|--|--|--|
| Configuration Package Register      |  |   |  |  |  |  |
|                                     |  |   |  |  |  |  |
|                                     |  |   |  |  |  |  |
|                                     |  |   |  |  |  |  |
|                                     |  |   |  |  |  |  |
| Congratulation J-K FL               | IP-FLOP decoding function has been activated!          |   |  |  |  |  |
| If you have questions about operati | ng software,please follow the appropriate instructions |   |  |  |  |  |
| below.Our technical department will | be happy to answer any questions you have.             |   |  |  |  |  |
| >> By phone:                        | Tel:886-2-66202225                                     |   |  |  |  |  |
| >> Applications through EMail:      | service_2@zeroplus.com.tw                              |   |  |  |  |  |
| >> Website:                         | http://www.zeroplus.com.tw                             |   |  |  |  |  |
| Copyright(C) 1997-2008 ZEROPLU:     | Copyright(C) 1997-2008 ZEROPLUS TECHNOLOGY CO., LTD.   |   |  |  |  |  |
|                                     |  |   |  |  |  |  |
|                                     |  |   |  |  |  |  |
|                                     |  |   |  |  |  |  |
|                                     | OK Cancel Default Help                                 |   |  |  |  |  |

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



## **3** Operating Instructions

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



**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.

| Bus/Signal     | Trigger Enable               | -20    |
|----------------|------------------------------|--------|
| Bus1           | 🋺 Sampling Setup             |        |
| A(             | Chernels Setup               |        |
|                | BUS Bus Property             |        |
| 🥖 A2           | Group into Bus               | Ctrl+G |
| 🧭 😽 A3         | Ungroup from Bus             | Ctrl+V |
| 📕 🥖 🖌 🖌        | Add Signal                   |        |
| 🖌 🖌 🖌          | Copy Signal<br>Delete Signal |        |
| 📕 🎸 🖌 A6       | Delete All Signals           |        |
| 🖌 🖌 A7         | Restore Default Signals      | 5      |
| 🖌 <b>BO</b> BO | Format Row                   | •      |
| 🥖 <b>B1</b> B1 | Rename                       |        |



**STEP 3.** For Protocol Analyzer J-K FLIP-FLOP Parameters Configuration, select Protocol Analyzer, and then select **ZEROPLUS LA J-K FLIP-FLOP MODULE V1.00.** Next click **Parameters Configuration** to open **Parameters Configuration** dialog box.

| Bus Property   |                                  |
|--|----------------------------------|
| General Bus Setting  General Bus  Activate the Latch function  Protocol Analyzer Setting | Color Config<br>A0               |
| Protocol Analyzer     ZEROPIUS LA AC97 MODULE VI.  | Parameters Config                |
| C ZEROPLUS LA J-K FLIP-FLOP MO   | Bo(internal v1.0)                |
| 🔽 Use the DsDp   | Find                             |
| More protocol analyzer: http://www.<br>OK  | w.zeroplus.com.tw<br>Cancel Help |

**STEP 4.** Click Register tab to type the serial key number of **J-K FLIP-FLOP**. Then, press **Register.** 

| PROTOCOL ANALYZER J-K FLIP-I   | FLOP SETUP:Bus1                                      | × |  |  |
|--|--|---|--|--|
| Configuration Package Register   |  |   |  |  |
|  |  |   |  |  |
| The J-K FLIP-FLOP protocol analyzer decoding function is an optional purchased   |  |   |  |  |
| Kent, welcome to purchase its sens   | ar key to activate this function for your necessary. |   |  |  |
| Enter serial key:  |  |   |  |  |
| If you have questions about ordering software,please follow the appropriate instructions below. Our sales department will respond to your enquiry as soon as possible. |  |   |  |  |
| >> By phone:   | Tel:886-2-66202225                                   |   |  |  |
| >> Applications through EMail:   | service_2@zeroplus.com.tw                            |   |  |  |
| >> Website:  | >> Website: http://www.zeroplus.com.tw               |   |  |  |
| Copyright(C) 1997-2008 ZEROPLU   | Copyright(C) 1997-2008 ZEROPLUS TECHNOLOGY CO. LTD.  |   |  |  |
|  |  |   |  |  |
|  |  |   |  |  |
|  |  |   |  |  |
|  | Register Cancel Default Help                         |   |  |  |



**STEP 5.** After completing **Register**, come back to the **Bus Property** dialog box, and then click the parameters configuration to start the Protocol Analyzer J-K FLIP-FLOP setup.

| Bus Property  |   |
|---|---|
| General Bus Setting<br>General Bus<br>Activate the Latch function | Color Config ,,,<br>A0                                |
| Protocol Analyzer Setting   | ,   |
| Protocol Analyzer   | Parameters Config                                     |
| C ZEROPLUS LA AC97 MODULE VI                                      | .00(Internalv1:00)<br>DULE V1.00<br>Oo(internal V1:0) |
| ☑ Use the DsDp  | Find  |
| More protocol analyzer: http://www<br>OK                          | Cancel Help   |

#### **STEP 6.** Select the Custom Channel.

| PROTOCOL ANALYZER J-K FLIP-FLOP SETUP:Bus1   |
|--|
| Configuration Package Register               |
| Element Type Pin Assignment                  |
| Element Select: Edging Trigger J-K FLIP-FLOP |
| Sampling Mode: Rising Edge                   |
| Output Delay Settings                        |
| Protocol Analyzer Color                      |
| 0 ··· 1 ERROR ···                            |
| OK Cancel Default Help                       |



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## **STEP 7.** Set **Pin Assignment**.

| Pin Assi      | gnment |                              |
|---------------|--------|------------------------------|
| -Input<br>CP: | A0     | ·                            |
| CLR:          | A1     | ► PR: A2 ▼                   |
| <b>I</b> ):   | A3     | • 🗆 J: AS 🖵                  |
| 🗹 к:          | A4     | • 🗖 K: 🗛 💌                   |
| _Output       |        |                              |
| 🔽 Q:          | A5 💽   | Virtual output decoding mode |
| ₹<br>Q        | A6     | •                            |
|               | ок     | Cancel Default               |

**STEP 8.** There are two selections of **Element Select**, Edging Trigger J-K FLIP-FLOP and Master-Slave FLIP-FLOP. There are two modes of **Sampling Mode**, Rising Edge and Falling Edge.

| PROTOCOL ANALYZER J-K FLIP-FLOP SETUP:Bus1               | $\mathbf{X}$ |
|--|--------------|
| Configuration Package Register                           |              |
| Element Type Pin Assignment                              |              |
| Element Select: Edging Trigger J-K FLIP-FLOP             |              |
| Sampling Mode: Rising Edge 💌                             |              |
| Output Delay Settings                                    |              |
| Customize delay time higher limit: 50 ns (lower limit 0) |              |
| Protocol Analyzer Color                                  |              |
| 0 · · · 1 · ERROR · · ·                                  |              |
|  |              |
|  |              |



**STEP 9.** Users should select Customize delay time higher limit when they set the part of Output Delay Settings, then users can set the delay time.

| PROTOCOL ANALYZER J-K FLIP-FLOP SETUP:Bus1               | × |
|--|---|
| Configuration Package Register                           |   |
| Element Type Pin Assignment                              |   |
| Element Select: Edging Trigger J-K FLIP-FLOP             |   |
| Sampling Mode: Rising Edge 💌                             |   |
| Output Delay Settings                                    |   |
| Customize delay time higher limit: 50 ns (lower limit 0) |   |
| Protocol Analyzer Color                                  |   |
| 0  |   |
|  |   |
| OK Cancel Default Help                                   |   |

**STEP 10.** Following pictures show the completion of the protocol analyzer decoding and the package list. The Trigger condition is set as Either Edge; the Memory depth is 128K; the Sampling frequency is 200MHZ.

| 1 TOLOCOL AIR     |                  |                     |                            |                             |                      |                      |
|-------------------|------------------|---------------------|----------------------------|-----------------------------|----------------------|----------------------|
| 😂 ZEROPLUS LAP-   | -32128U-         | <b>∆(S/N:</b> 00    | 0000-0000                  | ) - [JK_FLIP_FLOP.als]      |                      |                      |
| 🐔 File Bus/Signal | T <u>r</u> igger | Run/ <u>S</u> top   | <u>D</u> ata <u>T</u> ools | <u>W</u> indow <u>H</u> elp |                      | _ @ ×                |
| 🗋 😂 🔚 😂 🔋         | ų 🔍 💱            | ψ <sup>®</sup> Υ⊤ Ψ | 38 🗾 🕨                     | 🕪 🔲 🚧 128K 🗾 4 🚾 200MHz     | 💌 🗾 🎋 50% 💌 🚸 Page 1 | - Count 1 - fa 💼     |
| 🟠 🕓 🔝             |                  | 3 2 4               | " 🛗 📓 י                    |                             | 👬 👪 🍬 🔊 🐻 🞬 🔶 Height | 26 - Trigger Delay 1 |
| Font Size 12      | -                |                     |                            |                             |                      |                      |
| Scale:571.6691202 |                  | Displ               | lay Pos:11433              | A Pos:=64527 💌              | A - T = 64527 💌      | A - B = 30 ▼         |
| Total:131072      |                  | Trig                | ger Pos:O                  | B Pos:=64497  ▼             | B − T = 64497   🕶    | Compr=Rate:No        |
| Bus/Signal        | Trigger          | Enable              | <b>.</b>                   | T<br>20 -15 -10 -5          |                      | 15 20 27             |
| Busi (J-K 1       |                  |                     | ERROR                      |                             |                      |                      |
| 🖌 🖊 AC            | ×.               | •                   |                            |                             |                      | E                    |
| 🖌 CLK /           |                  |                     |                            |                             |                      |                      |
| 🧪 PR A2           |                  |                     | Í                          |                             |                      |                      |
| — 🧳 ЈАЗ           |                  |                     |                            |                             |                      |                      |
| 🖌 K A4            |                  |                     | Í                          | ה ההרד                      |                      |                      |
| 🧹 Q AS            |                  |                     |                            |                             |                      |                      |
| 🖌 Q' AE           |                  |                     | Í                          |                             |                      |                      |
| 🖋 A7 A7           |                  |                     |                            |                             |                      |                      |
| <b>60</b> BO      |                  |                     |                            |                             |                      |                      |
| <b># B1</b> B1    |                  |                     |                            |                             |                      |                      |
| 🥖 <b>B2</b> B2    |                  |                     |                            |                             |                      | ~                    |
| <                 | < >              | <>                  | <                          | 1                           |                      | >                    |

## Protocol Analyzer Decoding



#### Package List

