

#### A- Product Image:



#### A - Product Properties:

- ENE KB9010 / KB9012 / KB9022 / IT8586E / IT8585E / MEC1609 / NUVOTON NPCE288 NPCE388 / NPCE288NA0DX has the property to program IO integrated circuits.
- The product has the property to program EDID EPROM on LCD screen.
- The product has independent keyboard test property.

#### B- Points to Consider:

- When programming, the bottom part of the programmer should be kept away from conductive points.
- If the connection is short and you need to place the programmer on the motherboard, you need
  place a material such as paper or isolation materialthat will protect from short circuit beneath
  the programmer. Since the bottom part of the programmer contains live tips, if you place the
  bottom part directly on the motherboard, your device may get damaged.

#### C - Driver and Interface Software:

1. Please download the .RAR file that contains driver and interface software

2. Extract the compressed programmer in the .RAR file to desktop.

3. Within programmer folder, enter DRIVER FTDI CDM 2.08.30 WHQL Certified Driver folder, run CDM v2.08.30 WHQL Certified.exefile and introduce to card driver to your computer.

4. After installing the driver on the desktop, you can connect the programmer.

5. To run programmer interface by going back to previous folder, enter the folder of Programmer. Run Vertyanov JIG ver 4.C.exe file.

6. When the program is open, you will see the following screen.



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7. You will see a pop-up menu and by selecting the IO model you want to program, you can initiate the first step.

Each programming property has unique interface. To program ENE and ITE below, explanations are provided with new version programmer.

### **ITE IO Programming**

First, to program ITE, your motherboard should be free of any electronical malfunction.

When ITE IO integrated circuits are programmed, a film cable is used between motherboard and programmer.

You don't need to make any connections on programmer.

1. Since you need to energise the device while programming, plug in the adapter of the tool and wait. You need to plug in the adaptor to power socket of motherboard at that moment.

2.Before connecting IO programming device to USB, connect the motherboard and programmer.

3. When you are doing this connection no 1 pin on keyboard socket should correspond to no 1 pin on the motherboard. The pins should correspond such us 1<>1, 2<>2, 3<>3 until 30.

After making the necessary connections with film cable, you can measure the pins with your measurement tool in the buzzer mode to make sure the connection is correct.



4. To make the connections, you can use 30 or 32 pin straight film cable as show in picture below.

#### Example Connection:



5. After making necessary connection, please run Vertyanov JIG ver 4.C program in .RAR file. You will see the following screen. From Please Select pop up menu, select ITE chip, and press Start button.

Vertyanov_JIG VER 4.? 2/02/2018 for PCB2 only		
ITE -	Start	Exit
- Please select		
Keyboard testing		
NUVOTON spi		
NUVOTON jtag		
ENE KB90XX		
MEC jtag		
EDID lcd		
ITE		

6. Click on the upper list on the pop-up menu and select the model of the motherboard. The purpose of this operation is to automatically define the communication between the communication pins of the processor and the communication pins of the keyboard.

F02_02_2018 Mainboard Select First contact the programmer is connected to the first contact V (forward or reverse cable, etc.)			
ase select MOTHERBOARD first: Step by step Connect the programmer and MB witch flexible cable. Number of contacts in the flexible cable must be equal to the number of contact keyboard jack. On the programmer connect to the PC. Do not forget about the GROUND between the programmer and the MB! Set the control signals (drop-down list) and click "Apply settings". Connect the adapter (not battery!), and after 3-5 seconds click "Check connection". Now the "Read" or "White". After complete- disconnect power from MB and disconnect flexible cable.	Apply settings Check connection READ WRITE F if set->block_erase else->chip_erase CRUS/ENG text		
	EXIT		

7. Make sure that keyboard socket pin 1 on process is connected with keyboard socket pin 1 in the motherboard and approve the red **arrow**checkbox as shown in picture. If no.1 pin of the motherboard doesn't connect with no.1 pin of keyboard socket, uncheck the chechbox.

8. Then click on the **Apply settings** button indicated with **green** arrow.

9. Then click on **Check connection** button indicated with black arrow and connect the adaptor to the power socket of the motherboard within 5 seconds.

	=3 INII=10 SLIN=12 K31(=9 K313=/	
Step by step ^ Connect the programmer and MB witch flexible cable.	Apply settings	
Mander of contacts in Firsthere carbs under the belequar to the manuar of contact MB keyboard jack. On the programmer, flexible cable set from the first contact! MB is not powered! The programmer connect to the PC. Do not forget about the GROUND between the programmer and the MB! Set the control signals (drop-down list) and click "Apply settings". Connect the adapter (not battery!), and after 3-5 seconds click	Check connection	
"Check connection". Now the "Read" or "Write". After complete- disconnect power from MB and disconnect flexible cable.	READ	
	WRITE	
	RUS/ENG text	

You can change program interface language by clicking on **blue** checkbox.

9. After pressing **Check connection** button, a text as shown below will appear. You need to connect the adapter to energise motherboard in 5 seconds.

10. When you need to plug in the adapter, you should connect the adaptor in 5 seconds and keep the adapter connected until the programming is completed.

Step by step A	
	Apply settings
1 Connect the programmer and MB witch flexible cable.	
Number of contacts in the flexible cable must be equal to the number of contact	
keyboard jack. On the programmer, flexible cable set from the first contact: AB	1
is not powered: The programmer connect to the FC. Bo not rorget about the exoting	Check connection
2 Set the control signals (dron-down list) and click "Apply settings".	
3 Connect the adapter (not battery!), and after 3-5 seconds click	<u></u>
"Check connection".	
4 Now the "Read" or "Write". After complete- disconnect power from MB and	DEAD
disconnect flexible cable.	READ
Current time 19:57:59	
Number of VCOM ports found on the machine: 1	
Programmer FW version -> ITE2 24_06_17	WRITE
Communication with programmer installed.	
Send the settings.	4.
ll settings sent.	✓ if set->block_erase else->chip_eras
Check connection	
Number of VCOM ports found on the machine: 1	
Programmer FW version -> ITE2 24 06 17	
Communication with programmer installed.	
The programmer is found and ready to go.	RUS/ENG text
Connect the adapter and continue!	

11. When all the operations are correct, the programmer will indicate ID -> 8586. This message is presented after the communication is obtained with I/O integrated circuit. If this message does not show up, you may have a problem with your connection. If this message does not show up; after connecting the adaptor you may click on the send settings button and check the connection with check connection button.

```
Check connection ...
Number of VCOM ports found on the machine: 1
FW Version Programmer -> ITE 11_08_2015
Communication with programmer installed.
The programmer is found and is ready for operation.
```

Now, as soon as possible, plug the adapter (5 sec) ! Найден ID мульта -> 8586 ревизия -> 06

12. After all the necessary connections and operations are completed, if you want to read and save the software inside I/O integrated circuit, you can click on**READ**button. Before the read operation starts, you will see a window to select the saving locations of the software in EPROM. You can choose the name and location of the file.

??????? ???? ?????	? ??? ???????	??.			?
Konum:	1		• \$	• 🗈 🖆 🔳 •	
En Son Kullandiklarm Masaiistü Belgelerim					
Bilgisayanm	Dosya adı:	ITE_			Kaydet
	Kayıt türü:	BIN ???? (".bin)		-	İptal

13. When the reading operation is initiated, you can follow the % progress level from the green indicator

#### as shown on the image.

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14. For writing operation, click on Write button and show ROM file that will be written inside I/O integrated circuit. Writing will start when the file is shown.

15 Writing process can take a while. You need to wait for the process to be completed.

16. When the writing operation is completed plug out the adaptor as you plug out the film cable from the microprocessor. Re-connect the adaptor and test the device. The device should work without a problem.

## **ENE IO Programming**

1. ENE IO integrated circuits can be programmed with pins and keyboard film cables shown below.

3. First, you need to identify driver of the card. Required tools are given in C section of the first page.

3. Letter counterpart of pins in the green square on the card are written inside the yellow square on the card.



4. These letters should be transferred to pins inside the red square with transfer cables based on information given inside interface program of the programmer. Letter and pin number counterparts change according selected motherboard model.

E --> (KSI5)

D --> (KSI6)

C --> (KSI7)

- B --> (KSI4)
- A --> (KSO3)

G --> (GND) USB Cable should be connected to USB socket of motherboard and chassis should be provided.

5. Before connecting IO programming device to the computer, connect the motherboard and programmer. Connect motherboard and programmer with suitable film cable.

6. When you are doing this connection no 1 pin on keyboard socket should correspond to no 1 pin on the motherboard. The pins should correspond such us 1<>1, 2<>2, 3<>3 until 30.

7. After making the necessary connections with film cable, you can measure the pins with your measurement tool in the buzzer mode to make sure the connection is correct.

5. After making necessary connection, please run Programlayici\_4.93 program in .RAR file.

You will see the following screen. From Please Select pop up menu, select KB9010/12/16/22 chip, and press Start button.

Vertyanov_JIG VER 4.? 2/02/2018 for PCB2 only		
- ITE	Start	Exit
Please select		
Keyboard testing		
NUVOTON spi		
NUVOTON jtag		
ENE KB90XX		
MEC jtag		
EDID lcd		
ITE		

9. Click on the pop-up list on the top of the window and select motherboard model. On the left-hand side, LA initials are manufacturer model of the motherboard. KS information indicates which letters on the programmer are counterpart of which pins on 34-pin connection.

Model on the top, LA-7912P KSO3 represents letter Ad on programmer. You need to make connection between keyboard socket of programmer indicated with A and 4th pin using transfer cable.

KB9010/9012/9016/9022 programming VER4.1+		
KB90XX_READ	EXIT	KB90XX_WRITE
Help for FFC cable connection		
Step 1 -> Select MB		•
LA-7912P KS03=4 KSI4=23 KS LA-7981P KS03=18 KSI4=5 KS LA-7982P KS03=18 KSI4=5 KS LA-7983P KS03=18 KSI4=5 KS	817=26 KS16=25 KS1 817=2 KS16=3 KS15= 817=2 KS16=3 KS15= 817=2 KS16=3 KS15=	I5=24
LA-8127P KSO3=18 KSI4=5 KS LA-8131P KSO3=18 KSI4=5 KS LA-8133P KSO3=18 KSI4=5 KS LA-8133P KSO3=18 KSI4=5 KS LA-8223P KSO3=8 KSI4=9 KSI	817=2 KSI6=3 KSI5= 817=2 KSI6=3 KSI5= 817=2 KSI6=3 KSI5= 817=4 KSI6=6 KSI5=7	=6 =6 =6 7
LA-8262P KS03=18 KSI4=5 KS LA-8331P KS03=4 KSI4=23 KS LA-8681P (JKB1) KS03=18 KS LA-8861P KS03=22 KSI4=16 K	817=2 KSI6=3 KSI5= 817=26 KSI6=25 KSI 814=5 KSI7=2 KSI6= KSI7=11 KSI6=12 KS	=6 [5=24 =3 KSI5=6 3I5=14
LA-8865P KS03=22 KS14=16 K LA-8864P KS03=22 KS14=16 K LA-8941P KS03=8 KS14=14 KS LA-8951P KS03=9 KS14=22 KS	SI7=11 KS16=12 KS SI7=11 KS16=12 KS SI7=20 KS16=17 KS1 SI7=25 KS16=24 KS1	513=14 315=14 15=16 15=21
LA-9063P KS03=13 KSI4=26 K LA-9101P KS03=16 KSI4=27 K	KSI7=29 KSI6=28 KS KSI7=29 KSI6=28 KS	315=25 315=25

10. As shown in the picture below, based on board model selected from list, A letter corresponds to pin 4. You need to make a connection between KSI4 and pin 23. To learn which letter KSI+ is, you can check letter counterparts inside the yellow square. KSI4 indicates letter B.



11. To make things easier, select number of pins on film cable used for connecting motherboard and programmer from the second pop-up menu indicated with red arrow. After this select, as shown in the picture below, you will see which letter will be connected with which pin as indicated with green arrow. 12. letter A should be connected to no.4, letter B should be connected to no.23, letter C should be connected to no.26, letter D should be connected to no.25,

letter E should be connected to no.24, and lastly, letter G should be connected to motherboard USB socket.

This way, you can see different pin connections on the screen based on your model selection. Although some models use the same pins, each motherboard has unique and different pin connection.

KB9010/9012/9016/9022 programming VER4.1+	
KB90XX_READ EXIT KB90XX_WRITE	
F Help for FFC cable connection	
LA-7912P KSO3=4 KSI4=23 KSI7=26 KSI6=25 KSI5=24	-
30 pin	•
☞ Pin 1 connected to pin 1 on the MB keyboard connector	
Please connect GND and: A4 B23 C26 D25 E24	
	~
0.8	
<b>V</b> 8	

#### **New Version:**



Based on pin number of the film cable, please select the suitable option from the list below.

KB90XX_READ	EXIT	KB90XX_WRITE
Help for FFC cable connection	n KSI7=26 KSI6=25 KS	€I5=24 ·
<mark>32 pin</mark> 18 pin 20 pin		<u> </u>
24 pin 25 pin 26 pin 28 pin		
30 pin 32 pin		
	08	

13. After making necessary connections, connect your programmer to computer via USB. Then, connect adapter of the motherboard to power socket. To read from and save to IO integrated circuit, click **KB90XX Read** button.

14. If you want to upload new software to IO integrated circuit, click on **KB90XX\_Write**button and from this window, after showing the target of new software, writing operation will begin.

If you are experiencing an error, please check your adaptor.

If your adapter is working, the problem may be caused by your motherboard or IO integrated circuit.

No connection to the KB90XX! Motherboard is connected / powered ?

## Example Connection:



15. If your film cables and keyboard socket do not match, you can solder the keyboard ins with the cable and establish the required connections.



related motherboard.

**Empty Pin** 

- KSI5 Soldered on KB901X or Keyboard socket
- KSI7 Soldered on KB901X or Keyboard socket

**Empty Pin** 

KSI6 – Soldered on KB901X or Keyboard socket

- **GND** Soldered on Motherboard Ground
- KSI4 Soldered on KB901X or Keyboard socket

#### **Example Connections:**

## LA-8941P keyboard

KSI0KSI0JKSI0 <th< th=""></th<>
Boş Pin KSI5 - KB901x pinine veya Klavye Soketine Lehimlenecek. KSI7 - KB901x pinine veya Klavye Soketine Lehimlenecek. Boş Pin KSI6 - KB901x pinine veya Klavye Soketine Lehimlenecek. GND - Anakartın Şasesine Lehimlenecek. KSI4 - KB901x pinine veya Klavye Soketine Lehimlenecek.

Programming Cable – Programming Pin Connection Points

The programming pins below will be soldered on the keyboard pins according to the schematic of the related motherboard. Empty Pin

- KSI5 Soldered on KB901X or Keyboard socket KSI7 – Soldered on KB901X or Keyboard socket
- Empty Pin KSI6 – Soldered on KB901X or Keyboard socket
- GND Soldered on Motherboard Ground
- KSI4 Soldered on KB901X or Keyboard socket
- KSO3 Soldered on KB901X or Keyboard socket

# LA-9104P pinout



Programming Cable – Programming Pin Connection Points

The programming pins below will be soldered on the keyboard pins according to the schematic of the related motherboard.

Empty Pin

- KSI5 Soldered on KB901X or Keyboard socket
- KSI7 Soldered on KB901X or Keyboard socket
- Empty Pin
- KSI6 Soldered on KB901X or Keyboard socket
- **GND** Soldered on Motherboard Ground
- KSI4 Soldered on KB901X or Keyboard socket
- KSO3 Soldered on KB901X or Keyboard socket



LCD Screen Programming Cable and Connection Example:





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Connecting SAS 1.8 EDID Cable to Programmer:



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#### How Is LCD Screen Programming Cable Connection Made?

1. Find 40 pin LED or 30 pin fluorescent screen cables from scrap cables. Part that is inserted to LCD socket must be intact. Make sure there is no short circuit on the cable.

2. Based on following connection, you can make a customised, clean LCD screen programming cable. Recommended cable is **Dupont** cable.



3. After making necessary connections, isolate all the cables. Nuvoton IO Programming Equipment and Connection Example:









For any possible case, each model software will be installed with multiple backups. Although it is rear, some devices may require ID and special software. A1, A2 etc short terms will be added at the end of software with same model. This Represents 1st alternative software. Depending on the number of alternatives, the numbers after the letter A will increase. The website is only open to the use of IO programmer users. Sharing website content, technical documents, and user login information is strictly prohibited.

## **ENE Standard Programming Pins :**