# EasyAVR M128 SK 4in1



# Installation:

青 串口调试助手 SComAssistant V2.1	- D ×
波特率 9600 👤	
校验位 九NON▼	
送付申口     送付申口	
清空接收区 接收区	
停止显示	
▼ 自动清空	
保存显示数据更改	
C:\COMDATA	
	~
清空重填 发送的字符/数据	<b>A</b>
	-
目动发送(周期改变后重选) 自动发送(周期:1000 豪利 选择发送文件 还没有选择文件 发送文件 MAIL WEB	
中国 STATUS: COM1 OPENED, 9600, N. 8, 1 RX:0 TX:0 CounterRESET CTIMIA	关闭程序

Note: Please select the right COM port you will connect

- 2. Keep the jumpers at the default position; connect the EasyAVR to PC through serial cable.
- 3. Power on the board

You can use the USB Power Cable to the mother board or power by DC  $7^{9}$ V power adapter to the core board, in is VCC, out is GND. Like the follow picture show.





Note: if it is hard for you to connect RS232, you can watch the led display.

Once you power on the board, the Power led will light and you can see the result output to the serial test software, as the tests show, you can see the led result on the board.

#### Booting ... The Systerm Started Successfully \*\*\*\*\*\* LED Testing ... LED All On LED All Off Turn On LED 2 Turn On LED 3 Turn On LED 4 Turn On LED 5 Turn On LED 6 Turn On LED 7 LED All On LED All Off LED Test Finished \*\*\*\*\* Seg7 Testing ... Seg7 Display 1111 Seg7 Display 2222 Seg7 Display 3333 Seg7 Display 4444 Seg7 Display 5555 Seg7 Display 6666 Seg7 Display 7777 Seg7 Display 8888 Seg7 Display 9999 Seg7 Test Finished SPK Testing ... SPK Beep 3 Times SPK Test Finished



PCF8563 Testing ... PCF8563 Set Time: 2008-01-01 00:00:00 PCF8563 Read Time: 2008-01-01 00:00:02 PCF8563 Read Time: 2008-01-01 00:00:04 PCF8563 Read Time: 2008-01-01 00:00:06 PCF8563 Read Time: 2008-01-01 00:00:09 PCF8563 Read Time: 2008-01-01 00:00:11 PCF8563 Test Finished \*\*\*\*\* 24C01 Testing ... 24C01 Write:www.avrvi.com 24C01 Read:www.avrvi.com 24C01 Test Finished \*\*\*\*\*\* Key Testing ... Please Press Key S1 To S4, Press Key S4 To Exit Key Test. Please press the keys You Have Pressed Key S1 You Have Pressed Key S2 You Have Pressed Key S3 You Have Pressed Key S4 Key Test Finished \*\*\*\*\*\* All The Test Have Finished. Thank You For Chosen Our Prouducts. WebSite: www.avrvi.com Tel: 0531-80870158 3. Jumpers distribution and functions

EasyAVR Jumpers are at the positions show on the follow picture, you can open the Schematics easy128 v2\_PCB.pdf file in the Schematics folder and see them, every jumper has a note.



JMP1<sup>~</sup>JMP5: JTAG or ISP choose, to left as ISP, and to right is JTAG
 JMP6. JMP7: RS485 or RS232 choose, to left is RS485, and to right is RS232



- ▶ JMP8、JMP9: GLCM(12864) or CLCM(1602) choose
- JMP10: LCD backlight adjust choose
- ➢ JMP11: AVR AD AREF reference source choose, connect for AVCC, otherwise use AVR inside 2.56V
- ▶ JMP12: AD input control
- ▶ JMP13: RTC PCF8563T and external EEPROM AT24C01 IIC bus control
- ➢ JMP14: Buzzer control
- ➢ JMP15: LED connect control

#### 4. Driver install

EasyAVR use FT232 for USB to Serial Port, there are two methods for USB drive install:

1. Use the software ftdi\_ft232\_drive.exe, double click it for install, and then connect it to PC through USB, the windows new hardware install guide will finish

install it auto. Notice, you need to power on the board when you do this. 🔜

2. Connect the USB and power on the board, follow the guide on windows, choose .INF file and search, till to finish, do twice time.

After driver install, you can find the equipment in the device manager, as COM4 in follow chart. If you have install other device drive use FT232, it should not be the same, but since you can see it here, you can use it.





## 5. Development software install

Development software is in the software folder in CD, double click the icons and install them. You need to install ICCAVR and AVR studio at list.



## **5.1 Install ICCAVR**

Run iccavr6.31A. exe file, the screen like the follow picture.

Note: in order to avoid trouble by the file path, and easy to study and development, please set the ICCAVR install path to d:\icc.



## 5.1 Install AVRstudio

Double click the AVRstudio icon aStudio4.14b589.exe, install us the default set is ok.





## 6. Use on board STK500 ISP for Program

Note: below operates are based on USB drive installed, if you have not done it, please see chapter 4.

#### 6.1 Connect hardware

Use USB power cable and USB communicate cable to connect the board to PC, as the follow picture show.

Please note the jumpers JP1 $\sim$ JP5 at the left, that is to say at ISP mode.

You can use ISP program in AVRstudio and ICCAVR, suggest you use AVRstudio, if you use ICCAVR, you still need to install AVRstudio.



#### 6.2 Use AVR studio ISP program

Open soft AVR studio, click the icon named connect show on the follow chart, or click the menu Tools->Program AVR->Connect

![](_page_5_Picture_9.jpeg)

Choose STK500 or AVRISP and the COM port you have see when you install the USB deriver, or choose Auto (if choose auto, you must confirm the COM port is less than COM4), then click Connect

![](_page_5_Picture_11.jpeg)

Select AVR Programmer		×
Platfor STK500 or AVRISP JTAGICE TTAGICE mkTI	Port Auto COM1 COM2	Connect
AVRISP mkII	COM3 COM4 COM5	<u> </u>
Tip: To auto-connect to the p the 'Programmer' button on th	programmer used last time, press ne toolbar.	
Note that the JTAGICE cannot as it is connected in a debug	be used for programming as long gging session. In that case,	
Disconnected Mode		

On the follow chart, you can program flash eeprom fuses and lock-bits, more details you can see AVRstudio help.

ST <b>K</b> 500		
Program Fuses LockBi	ts Advanced Board	Auto
- Device		
ATmega128	▼	<u>E</u> rase Device
-Programming mode © ISP © Parallel/High Vol	▼ Erase De tage :  ▼ Verify I	wice Before Nevice After Program
C Use Current Simul © Input HEX FilE:\d	ator/Emulator FLASH emocode\key_4\outpu	M∈ t\main. hex
Program	Verify	Read
EEPROM © Use Current Simul © Input HEX FilE:\d	ator/Emulator EEPROM emocode\key_4\outpu	I Men t\main.eep
Pr <u>o</u> gram	Ver <u>i</u> fy	Re <u>a</u> d
Detecting on 'COM3' STK500 with V2 firmware Getting revisions HW:	found on COM3 Ox10, SW Major: Ox03	2, SW Minor: 0x04

# 6.3 Use ICCAVR ISP Program

Run ICCAVR, run In System Programmer in Tools menu, as the follow picture show.

![](_page_6_Picture_5.jpeg)

![](_page_6_Picture_6.jpeg)

You need to set the parameters on the window:

- 1. Choose Programmer interface mode to STK-500;
- 2. Set the COM port to the right port you have see;
- 3. Then click ISP Options button, set the STKS500. exe file path, the STK500. exe is one file of AVRstudio, it is in the AVRstudio install folder, the default is C: \Program Files\Atmel\AVR Tools\STK500\Stk500. exe

In System Programming					×	
Programmer Interface		Ad	vanced Manual	Mode (0x for	HEX)	
C STK-200/300 NOTE: adminis parallel	Environment Preferences	Options Terminal ISP				×
STK-500     STK-500     DT-006     STAVER     COM1     ISP Options     Additional STK500.exe comma	NON-STK500 Programming I I ✓ Use Defau tiny and 1200 I ✓ Use Defau Erase Delay I ✓ Use Defau Path to STK50	Delays (mSecs) Delay ult Delay ult IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	M M R Studio)	ega 103 Delay 1 Use Default ega 161 Delay 1 Use Default eset Delay 1 Use Default 14500 eve		
Auto Program After Compile and selected EEPROM opt						
Verify After Programming	ОК	Cancel		<u>H</u> elp		
FLASH Options     Program with project output     Manual select	files.	Manual Selectic Select .hex file D:\avrvi\AVR\	on Files for FLASH /i_m128_Starter	Bro Kit\Key\outpu	wse It\main	
Program <u>F</u> LASH/EEPROM Verify FLASH/EEPROM		Select .eep file	for EEPROM	Bro	owse	
			ОК		Cancel	

After the parameters set, you can program HEX and EEP file, and read or and program fuses and lock-bits. (Note: please do not change fuse setting until you know well about them, wrong fuse settings should lock the AVR chip.)

## 7. Use JTAG Program

The hardware connection is similar with ISP program, Please note the jumpers JP1 $\sim$ JP5 to right, work in JTAG mode.

Open the Program dialog, click the connect icon or click the menu Tools->Program AVR->Connect, as follow chart show.

![](_page_7_Picture_9.jpeg)

🐌 AVB	Studio											
Eile	<u>P</u> roject	Build	<u>V</u> iew	<u>T</u> ools	<u>D</u> ebug	Help	)					
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I/O Vier	W					Dis	splay tł	ne 'cor	nnect' d	ialog		
Name			٧	'   B	its							

Choose JTAGICE, choose the COM port you use, and click Connect.

Select AVE Programmer		X
Platfor STK500 or AVRISP ITAGE TOE JTAGICE mLII AVRISP mLII	Port Auto COM1 COM2 COM3 COM4 COM5	<u>C</u> onnect Cancel
Tip: To auto-connect to the pr the 'Programmer' button on the Note that the JTAGICE cannot b as it is connected in a debugg Disconnected Mode	ogrammer used last time, press toolbar. e used for programming as long jing session. In that case,	

You can see the follow dialog if connect success. Program flash eeprom fuses and lock-bits here, more details you can see AVRstudio help.

JTAG ICE	
Program Fuses   LockBits   Advance	ed Board Auto
ATmega128	<u>E</u> rase Device
Programming mode C ISP C Parallel/High Voltage :	Z Erase Device Before Z Verify Device After Program
Flash C Use Current Simulator/Emuls C Input HEX FilE:\democode\ke	stor FLASH Me sy_4\output\main.hex
<u>P</u> rogram <u>V</u> er:	ify <u>R</u> ead
EEPROM C Use Current Simulator/Emuls Input HEX Fi:E:\democode\ke	ator EEPROM Men ay_4\output\main.eep
Pr <u>o</u> gram Ver	fy Read
Detecting on 'Auto' JTAG ICE found on COM3: Getting revisions HW: Oxc2, SW N OK	▲ Najor: Ox7f, SW Minor: OxOO ▼

![](_page_8_Picture_5.jpeg)

## 8. Use JTAG emulation

Hardware connection is same as JTAG Program, JP1 $\sim$ JP5 to right side for JTAG mode.

Open the project file, menu File  $\rightarrow$  Open File…, as the follow chart.

![](_page_9_Picture_3.jpeg)

Choose the .COF file you need to emulate.

打开					<u>? ×</u>
查找范围(I):	🚞 output		•	+ 🗈 💣 🎟	-
Fecent Recent 夏面 愛 我的文档 愛 教的电脑 死上邻居	main. cof main. dbg main. hex				
	文件名 @): 文件类型 (I): Open as:	main.cof Object Files Auto	(*. hex;*. d90;*.	▼ a90;*.r90 ▼	打开 (1) 取消

Choose JTAG ICE, choose the chip model, and then click Finish Select device and debug platform

Studio 4	Select debug platform and device Debug platform: JTAGICE mkII ICE 40 ICE 50 JTAG ICE AVR Simulator ICE 200	Device: AT90CAN128 ATmega128 ATmega16 ATmega162 ATmega169 ATmega32 ATmega323 ATmega64 AT86RF401 AT89S51 AT89S52
	Port: Auto	form options
Ver 4.12.460	<< Back Next >>	FinishCancelHelp

Operate at the end chart, begin your program debugging.

![](_page_9_Picture_9.jpeg)

![](_page_10_Picture_0.jpeg)

Here are code view, information view and processer etc. You can see the chip work station such as IO port, Timer, AD, USART etc. You can through the menu button to do single step debugging, set breakpoints, observe variables, see registers, check procedure of spatial data, etc.

🎓 AVR Studio	- [Disas	sembler	]										_ 🗆 🗵
Eile Projec	t <u>B</u> uild	<u>E</u> dit <u>V</u>	jew <u>T</u> o	iols <u>D</u> e	ebug	<u>W</u> indow	F	<u>H</u> elp					- 8×
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	-	<u>\</u>	<u>1</u>	本 1: 68	2 603	<b>**</b> 742 **	}2 A	IUTO : 🗙 🎪	💟 🔞	1 🛛 🏤			
Processor							1	'O View					<b>▼</b> X
Program Coup	Memory		0/16	abo	Addro	oo: 0v00	×	🛷 🗸 193 📰				•	
Stack Pointe:	Fiogram				Addre	ss. Joxoo					1		
X pointer	0000000	)C 94 24 FF FF F1	1 00 FF	FF .3	·•		-	Name	Ad	Value	Bits		
Y pointer	0000003 F	FF FF FI	F FF FF	rr FF				E 💮 TIMER_COU	INTER_U				
Z pointer	000009 F	FF FF FI	FFFFF	FF				N SHEXTERNAL	TNTE	Vatch			×
Cycle Counte:	00000C H	FF FF FI	F FF FF	FF				E E EEPROM	1	Name		Value	
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STOP Match	000012 8	וא אא איז די דיי די	' FF FF - FF FF	F.F. F.F.				🛛 🛞 TIMER_COU	INTER				
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	R12= 0x	00 R13	= 0x00					- PORTA					
Message	R14= 0x	00 R13	= 0x00					🚬 PORTA	0x.	0x02			
Loaded plugin	a R16= <mark>0</mark> x	C8 R17	'= 0x00			-		🤸 ddra	0x.	0x03			
Loaded plugin	1 R18= 0x	00 R19	= 0x00					PINA 🚬	0x.	0x02			
AVR Simulator	EZU= UX 1222- 0v	(UU RZ) (OO R2)	$= 0 \times 00$	-	[ กนไ เ	tor 🗸	11 -	PORTB					
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🔳 Build 🕕 Mes	sage 🗟 F	Find in Fil	es   🌠 Bi	reakpoin	ts and	Trace		WATCHDOG					
					ATme	ga16	AV	R Simulator	Auto	Stopped (	∋		CAPI

Made in China

![](_page_10_Picture_4.jpeg)