利用 S64 最小系统板设计的 USB AVRISP mkll 下载器 文档编号 MAN2007A_CH 文档版本 Rev. A 详细描述了利用 S64 最小系统板设计 USB AVRISP mkll 下载器 文档摘要 关键词 AT91SAM7S64、S64 最小系统板、USB AVRISP mkll 创建日期 2009-12-09 创建人员 审核人员 Robin <u>Hotislandn</u> 文档类型 公开发布/开发板配套文件 版权信息 Mcuzone 原创文档,转载请注明出处

Template A.1

更新历史

版本	时间	更新	作者
Rev. A	2009-12-09	初始创建	Robin

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1.概述

AT91SAM7S64 芯片内部内置 USB Device,而且具备 64K FLASH 和 16K SRAM,可以利用这些资源设计一款兼 容型 USB AVRISP mkll 下载器(编程器)。



2. 烧写 USB AVRISP mkll 固件

在烧写固件前请先安装 SAM-BA。版本不限,只要支持 AT91SAM7S64 即可。

首先将最小系统板的 JP1 跳线短接 1-2, 然后插上 USB 上电, 等待 10 秒, 10 秒后, 拔掉 USB 线, 然后将 JP1 短路帽拔掉或者跳到 2-3。再重新上电, 上电后 PC 会发现新硬件, 请按照提示安装驱动。驱动安装完成后即可在设备管理器里面发现 atm6124 设备, 如下图:

□ 设备管理器	
文件(E) 操作(A) 查看(V) 帮助(H)	
匣 🥑 端口 (COM 和 LPT)	~
E ····································	
□ 圆 人体学输入设备	
田····································	
□ 😴 通用串行总线控制器	
atm6124.Sys ATMEL AT91xxxxx Test Board	
Intel (R) ICH9 Family USB Universal Host Controller - 2934	
🚔 Intel (R) ICH9 Family USB Universal Host Controller - 2936	
Fintel (R) ICH9 Family USB Universal Host Controller - 2937	
Thtel(R) ICHS Family USB Universal Host Controller - 2939	
🛶 Intel(R) ICH9 Family USB2 Enhanced Host Controller - 293A	
→ ISB Composite Device	
USB Mass Storage Device	
USB Root Hub	_
USB Koot Hub	×
出现该设备之后就可以打开 SAM-BA 开始烧写了。	
SAN-BA 2.9	
Select the connection : \usb\ABM0	
Select your board : at91sam7s64-ek	
Connect	
占土法论校研	
点山廷按按钮:	

	SAT-BA 2 0	- ot 91 con 7 c64	-ak				
1.11	JAL DA 255	- 41915411504	-68				
F	ile Script File L	Link Help					
	at91sam7s64 Memory	Display					
9	Start Address : 0x200	000 Refresh	Display format			Apple	t traces on DBGU
S	ize in byte(s) : 0x100		Cascii C 8-t	oit 🔿 16-bit 🖲 32	-bit	linfos	Apply
	0x00200000	0xEA000013	OxEAFFFFFE	0xEA000054	OXEAFFFFFE		<u>^</u>
	0x00200010	OXEAFFFFFE	OxEAFFFFFE	OXEAFFFFFE	0xE599820C		
	0x00200020	OxE3A0D004	OxE58BD128	OxE59AD04C	OxE59CD004		
	0x00200030	OxE21DD001	0x125EF004	OxE59ADO3C	OxE21DDF80		
	0x00200040	0x01CC80B0	0x11CC80B2	0x13A0D001	0x158CD004		
	0v00200050	0xF25FF004	0781080000	0vF321F0D1	0752852000		×
E	EPROM AT24 Flag	sh SRAM					
Г	– Download / Upload	l File					
Send File Name : ://Documents and Settings/Administrator/桌面 /avrisp mkii.bin 🔑 Send File							
	Receive File Name :				₽	Receive File	
	Address :	0x100000 Size	(For Receive File) :	0x1000 byte(s)		Compare sent file with memor	y III
L	Scripts						
	Disable BrownOut D	etector (GPNVM0)		▼ Evecute	1		
l		elector (or norme)	-	Encouro			
_							
SA	M-BA console disp	lay active (Tcl8.4.1	3 / Tk8.4.13)				<u>^</u>
(A1	(91-ISP v1.13) 1 9	%					
(A)	(91-15P VI.13) I %	Yo					
						\usb\ARM0 Boa	rd : at91 sam7s64-ek 🤍

选择要写入的 avrisp_mkii.bin 文件,然后点 send file 按钮进行烧写。 系统会提示要不要解锁:



选择 NO,即不加锁。如果选择了 YES,那么下次烧写的时候需要将 ERASE 引脚拉高来删除代码。

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3. 安装 AVRSTUDIO 和驱动并进行烧写测试

注意,此 USB AVRISP mkll demo 仅针对 AVRSTUDIO 4.12 B460(可在 Mcuzone 网站下载),用于演示目的,非 商用版本,我们不保证提供技术升级服务。

请先下载 AVRSTUDIO 4.12 B460 并安装,注意,请勾选 USB 驱动并安装,安装完成后将光盘里面的 Stk500Common.dll 文件覆盖到安装目录下的 STK500 文件夹。

Select Features Select the features setup will i	nstall.	
	Select the features you want to install, and de Implicately the features you want to install the features you want to i	eselect the features you want to uninstall. Description USB driver for ICE 40, ICE 50, AVRISP mkII and JTAGICE mkII. These can be installed later by running the Setup program and select Modify. Windows 95 and Windoes NT does not support USB.
InstallShield	< <u>B</u> ack <u>N</u> ex	t > Cancel

然后插上最小系统板, PC 将发现新硬件,请按照提示安装。正确完成后可以在设备管理器里面找到 AVRISP mkll 设备:



选择 AVRISP mkII 和 USB 端口, 然后 Connect:

AVRISP =kII		
Program Fuses LockBits Advanced Board Auto		
Device		
ATmega16 💌 Erase Device		
- Programming mode		
C Parallel/High Voltage : Verify Device After Progra	1	
Flash		
Input HEX FilC:\Documents and Settings\Administrat		
Program Verify Read		
C Vse Current Simulator/Emulator EEPROM Men		
🕞 Input HEX Fil		
Pr <u>o</u> gram Ver <u>i</u> fy Re <u>a</u> d		
Setting mode and device parameters OK! Entering programming mode OK!		
Reading signature 0x1E, 0x94, 0x03 0K! Leaving programming mode 0K!		
选择器件,以ATmega16为例进行演示。		
AVRISP SET		
rrogram Fuses LockBits Advanced Board Auto		
Device	1	
AImegal6 <u>E</u> rase Device		
Programming mode		
♥ LSF C Parallel/High Voltage : Verify Device After Progra	r	
Flash		
C Use Current Simulator/Emulator FLASH Me		
• Input HEX Fil Settings\Administrator\桌面\Test.hex		
<u>Program</u> <u>Verify</u> <u>R</u> ead		
EEPROM		
C Use Current Simulator/Emulator EEPROM Men		
• Input HEX Fil		
Pr <u>og</u> ram Ver <u>i</u> fy Re <u>a</u> d	1 1	
Setting mode and device parameters OK!	<u> </u>	
Entering programming mode OK! Erasing device OK!		
Programming FLASH OK! Reading FLASH		
J •		

Read 测试。

AVRISP mkII		
Program Fuses LockBits Advanced Board	Auto	
Device	Erase Device	
Programming mode		
© ISP	evice Before Device After Program	
Flash © Use Current Simulator/Emulator FLAS	[Me	\sim
Input HEX Fill Settings\Administrator Program Verify	\桌面\Test.hex	
© Use Current Simulator/Emulator EEPR © Input HEX Fil)M Men	
Pr <u>o</u> gram Ver <u>i</u> fy	Read	
Erasing device OK!		
Programming FLASH OK! Reading FLASH OK! RIASU		
LASA contents is equal to file OK Leaving programming mode OK!	×	
编程测试。		
AVRISP mkII		
Program Fuses LockBits Advanced Boar	l Auto	
On-Chip Debug Enabled; [OCDEN=0]		
✓ JTAG Interface Enabled; [JTAGEN=0] Serial program downloading (SPI) enabled	led: [SPIEN=0]	
Preserve EEPROM memory through the Ch	ip Erase cycle; [EE	
Boot Flash section size=120 words boo	t start address=\$1F t start address=\$1F	
□ Boot Flash section size=512 words Boo ■ Boot Flash section size=1024 words Bo	t start address=\$1E of start address=\$1	
Boot Reset vector Enabled (default ad	dress=\$0000); [BOOT	
CKOPT fuse (operation dependent of CB Brown-out detection level at VCC=4.0	SEL fuses); [CKOPT= V: [BODLEVEL=0]	
Brown-out detection level at VCC=2.7	V; [BODLEVEL=1]	
L Brown-out detection enabled; LBODEN=C □ Ext. Clock; Start-up time: 6 CK + 0 m] s; [CKSEL=0000 SVT=	
✓ Auto Verij ✓ Smart Warnings	erify Read	
Setting mode and device parameters. OK!	<u>~</u>	
Entering programming mode. UK! Reading fuses 0x99, 0xE1 0K!		
Pressing brockamming mode. OK:	<u>×</u>	

Fuses 测试。

AVRISP mkII
Program Fuses LockBits Advanced Board Auto
 Mode 1: No memory lock features enabled Mode 2: Further programming disabled Mode 3: Further programming and verification disabled Application Protection Mode 1: No lock on SPM and LPM in Ap Application Protection Mode 2: SPM prohibited in Applicatic Application Protection Mode 3: LPM and SPM prohibited in Applicatic Boot Loader Protection Mode 1: No lock on SPM and LPM in Bc Boot Loader Protection Mode 2: SPM prohibited in Boot Loade Boot Loader Protection Mode 3: LPM and SPM prohibited in Bc Boot Loader Protection Mode 3: LPM and SPM prohibited in Bc
✓ Auto Verif Program Verify Read ✓ Smart Warning:
LockBits 测试。
AVRISP mkII
Program Fuses LockBits Advanced Board Auto
Signature Bytes Ox1E 0x94 0x03 Signature matches selected device
Oscillator Calibration byte Calibrate for frequency: 1.0 MHz
Value Write Read Cal. Byte 0xB6 C Eeprom Write to Memory
Communication Settings Baud 115200 Baud rate changes are active immediately.
Setting mode and device parameters OK! Entering programming mode OK! Reading calibration byte OxB6 OK! Leaving programming mode OK!

Advanced 测试,可以读取校准字。

AVRISP mkII	
Program Fuses LockBits Advanced Board Auto	
Voltages	
VTarget 6.0 ARef: 6.0	
0.0 - 0.0 <u>Frite Voltages</u>	\sim
Oscillator and ISP Clock	
STK500 Osc: Attainabl Read	$\bigcap^{\mathbf{y}}$
ISP 125.0 kHz 🗸 Attainab]125.0 kHz Write	
Note: The ISP frequency must be less than 1/4 of the	
Revision Hw: OxOO, FW major: OxOO, FW minor: OxO1 Upgrade	
Getting revisions HW: 0x00, FW Major: 0x00, FW Minor: 0x01 OK Getting VTARGET 4.8V OK Getting ISP frequency parameters SD=0x06 OK	

Board 测试,注意,速度仅在125和8M之间有效,而且有一定的偏差。目标板电压固定为4.8V, 建议让目标板工作在3.3V方便和最小系统板的3.3VIO进行匹配。

目前在 ATmega48/88 和 ATmega16/32 上测试通过。

注意:此 USB AVRISP mkll 固件仅为演示用,并非商用产品,我们不对其提供商业技术支持和商业升级服务,请见谅。