

# IAC-A5D3x-Kit

# Linux System Image Burning Manual

Version:2.0 2014/10/08

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# Catalogue

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FCHNOLOGY

# **Version Illustration:**

Version	Hardware	Description	Date	Revisor
	Platform			
1.0	IAC-A5D3x	Launched	2014-02-08	yao
	-Kit			
2.0	IAC-A5D3x	Add the image method for burning	2014-10-08	WWX
	-Kit	sama5d36		

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# Preface

This manual mainly introduces how to burn system image to the development board.

Please read *IAC-A5D3x-Kit Linux Linux User Manual* detailedly before using this manual.

According to the bootstrap's storage medium, the development board provides two boot modes : Dataflash boot method and Nandflash boot method.

#### Difference:

Boot from dataflash, store primary bootstrap and secondary bootstrap into dataflash; Boot from nandflash, store primary bootstrap and secondary bootstrap into nandflash. Burn the kernel and file system image into the same position of the nandflash. According to the suitable boot method and burn procedures to burn.

The default boot method: Dataflash.

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#### I.Preparation

#### **1.1 Boot Method Introduction**

This development board provides two boot methods: Boot from dataflash , boot from nandflash . The difference is medium for storing primary and secondary bootstrap: The former be stored in dataflash, the latter be stored in nandflash.

This development board provides three methods by dataflash boot method to burn image; two methods by nandflash boot method to burn image.

#### **1.1.1. Boot From Dataflash**

This boot method provides three burning methods: By manual; auto script; SD card.

Through [sam-ba]software, burn the image to the development board by manual or auto script through [usb]connector.

Please set ,as per Chapter 1.2.1 before burning image.

SD card burning, you could achieve automatic burning by SD card, please refer to Chapter 1.2.2 to set before burning.

#### 1.1.2. Boot From Nandflash

This boot method provides two burning methods: By manual and auto script.

All of them are by [sam-ba]software to burn image into nandflash through [usb] connector. Please refer to Chapter 1.2.1 to set before burning.

#### 1.2. Set

According to different burning methods, the preparation are different: By manual or auto script to burn , please refer to Chapter 1.2.1 to set; Use SD card to do automatic burning, please refer to Chapter 1.2.2 to set.

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## 1.2.1. Preparation By USB Burning

The following operation procedures are all executed in windows xp, if using windows 7 to burn, the operation method is same. We are using the [sam-ba\_2.12.rar]in CD for current burning use. In order to burn smoothly, please do not use the other version [sam-ba] tool.

#### Install[samba-2.12].

.

IAC-A5D3x-Kit Iinux To	ol Software	▼   ◆ ↑   搜索 Tool	Software
			:≡ ▼ [
	▼ 修改日期	类型	大小
Serial Debugging Assistant2.1	2015/4/22 15:52	文件夹	
dhcpsrv1.5	2010/7/14 14:15	WinRAR 压缩文件	18 KB
MiniComm	2008/7/19 17:06	WinRAR 压缩文件	19 KB
sam-ba_2.12	2012/11/2 16:24	WinRAR 压缩文件	6,252 KB
SecureCRT.v6.7.1	2015/4/22 16:00	WinRAR 压缩文件	26,885 KB
Serial Debugging Assistant2.1	2015/4/22 16:01	WinRAR 压缩文件	138 KB
Source Insight	2015/4/22 16:21	WinRAR 压缩文件	3,130 KB
tftpd32	2006/12/20 9:47	应用程序	56 KB
EXP Version Hyper Terminal	2015/4/22 15:51	WinRAR 压缩文件	153 KB

Extract, then double-click [sam-ba\_2.12.exe] to install.

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Click [I Agree].

Image: Status   Increase Procession: 2.12 Release Notes SAN-EA Release Notes SAN-EA Release version: 2.12 Release date: 2012 1 Overview The SAM Boot Assistant (SAM-FA) software provides a means of easily provaming different Atael AT91SAM devices. They are based on a common dynamic linked library (DL). the sam-ba dil. SAM-FA use the DLL to If you accept the terms of the agreement, dick I Agree to continue. You must accept the agreement to install SAM-BA v2.12. Wilsoft Install System v2.45 Image: SAM-FA v2.12 Setup Image: SAM-FA v2.12 Setup Image: Sam-FA v2.12 Setup Image: Sam-FA v2.12 In the following folder. To install SAM-BA v2.12. Subust Install SAM-BA v2.12 in the following folder. To install an adfirerent folder, dick rows and select another folder. Click Next to continue. Subust Install SAM-BA v2.12 In the following folder. To install an adfirerent folder, dick rows and select another folder. Click Next to continue. Subust Install SAM-BA v2.12 In the following folder. To install an adfirerent folder, dick rows and select another folder. Click Next to continue. Subust Install SAM-BA v2.12 In the following folder. To install an adfirerent folder, dick rows and select another folder. Click Next to continue. Expremention Folder Inforgam Files/Atmel/sam-ba_2.12 Boxee required: 51.4748 Space requ	🗊 SAM-BA v2.12 Setup		ļ
Release notes   Release Notes   SAM-BA   Release version: 2: 12   Release date: 2012   1 Overview   The SAM Boot Assistant (SAM-BA) software provides a means of easily provements different Atmel APISISM devices. They are based on anily initial library (DLI), the sam-ba.dil. SAM-BA use the DLI to: The vaccept the terms of the agreement, dick I Agree to continue. You must accept the greement to install SAM-BA v2.12. West I install System v2.45 Example: <b>SAM-BA v2.12 Stup Sone Same Same Same Same Same Same Same Sam</b>		License Agreement Please review the license terms before installing SAM-BA v2.12.	
Release Notes SAM-BA   Release version: 2:12   Release date: 2012   1 Overview The SAM Boot Assistant (SAM-BA) software provides a means of easily programming different Atmel AT91SAM devices. They are based on a common dynamic linked library (DLL), the sam-ba.dll. SAM-BA use the DLL to   If you accept the terms of the agreement, dick I Agree to continue. You must accept the agreement to install SAM-BA v2.12.   Nullsoft Install System v2.45   Itick[Next].   SAM-BA v2.12 Setup   Itick[Next].   Choose the folder in which to install SAM-BA v2.12.   Setup will install SAM-BA v2.12 in the following folder. To install in a different folder, click frows and select another folder. Click Next to continue.   Destination Folder   D:Program Files/Atmelyam-ba_2.12   Bicks required:   Space required:	Release note		
Release version: 2.12 Release date: 2012 1 Overview The SAM Boot Assistant (SAM-BA) software provides a means of easily programming different Atmel AT91SAM devices. They are based on a common drummic linked library (DLL), the sam-ba.dll, SAM-BA use the DLL to drummic linked library (DLL), the sam-ba.dll, SAM-BA use the DLL to drummic linked SAM-BA v2.12. Nulsoft Install System v2.45 Cancel Cancel Cancel Cancel Cancel Cose the folder in which to install SAM-BA v2.12. Cose the folder in which to install SAM-BA v2.12. Setup will install SAM-BA v2.12 in the following folder. To install in a different folder, dick Browse and select another folder. Click Next to continue. Destination Folder D:Program Files/Atmel/sam-ba_2.12 Egouse Space required: 51.4MB Space available: 36.06B Nulsoft Install System v2.45	Release Notes SAM-BA		
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William Constant Location         Choose the folder in which to install SAM-BA v2.12.         Setup will install SAM-BA v2.12 in the following folder. To install in a different folder, dick rowse and select another folder. Click Next to continue.         Destination Folder         D: Program Files \Atmel \sam-ba_2.12         Browse         Space required: 51.4MB         Space available: 36.0GB         Mullsoft Install System v2.45	lick[Next]. 🗊 SAM-BA v2.12 Setup		ļ
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Space available: 36.0GB Nullsoft Install System v2.45	Space required: 51.4MB		
Nullsoft Install System v2.45	Space available: 36.0GB		
< Back Next > Cancel	Nullsoft Install System v2.45 -	< Back Next > Cancel	

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Select installation path, click [Next].

🕞 SAM-BA v2.12 Setup	X	
	Choose Start Menu Folder Choose a Start Menu folder for the SAM-BA v2.12 shortcuts.	
Select the Start Menu folde can also enter a name to c	er in which you would like to create the program's shortcuts. You reate a new folder.	
Atmel\SAM-BA v2.12		
360安全中心 Accessories Administrative Tools Adobe Photoshop CS2 Altera Altium Designer 6 Android SDK Tools	E	h
Autodesk DAEMON Tools Ultra EDUP 11n USB Wireless L/ Foxmail	AN Utility	
Nullsoft Install System v2,45	< <u>B</u> ack Install Cancel	
Click [Install], start to insta		
G SAM-BA v2.12 Setup		
	Installation Complete Setup was completed successfully.	
Completed		
Show <u>d</u> etails		
INUIISOFT INSTAll System V2.45	< <u>B</u> ack <u>Next</u> > Cancel	
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Finished, click [Next].

🕞 SAM-BA v2.12 S	etup			J
	Create shorter	uts		
	SAM-BA Shortcuts           Image: Desktop           Image: Quick Launch Bar			and the second se
				2
Nullsoft Install System	v2.45	< <u>B</u> ack Next >	Cancel	
Click [Next].			HUL	

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Here ,remove [USB Notice] option, click [finish], finish installation. If there is a hint to reboot computer, please reboot, then install. Remove [J1] jumper cap from Core Board.

Connect COM on PC to debug port (J3) on IAC-A5D3x-Kit by cross serial wire. Open serial

debug terminal on PC, set parameters: Baud Rate:[115200];Data Bit:[8]; Stop Bit:[1]; Parity Bit: [None]; Data Flow Control: [None].

Connect USB port on PC to USB port (J14) on IAC-A5D3x-KIT development board by USB cable.

Power on IAC-A5D3x-Kit development board , open the device management on computer. If the computer has recognized the board, you could find out the device on the device management port.

As shown, the red is the COM6, the actual user's terminal may be inconformity with this end.

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Open terminal program [MiniComm.exe], click [file-system set].

文件(	F) 查看(V) 通讯(C)	帮助(H)		
	系统设置(O)	Ctrl+O		
ł	装入当前记录(N)			
1	装入历史记录(H)…			
1	外部处理当前记录(V)	Ctrl+E		
1	外部处理历史记录(I)…	Ctrl+Alt+E		
✓	接收数据存盘(L)			
4	键盘输入存盘(K)			
-	退出(X)			
			1	

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Click[Communication Setting ----Serial Setting].

🛃 系统设置	X				
方案配置 通讯设置 终端设置 文件设	[置]				
	_ 收发				
◎ 使用串行口连接   串口设置	☑ 接收时自动在回车后加上换行				
COM1:115200, n, 8, 1	□ 发送时自动在回车后加上换行				
○ 使用TCP/IP连接	□ 发送数据间等待 10 毫秒				
主机地址	□ 将所有键作为输入发送到端口				
端口号 23	□ 作为S1240交换机终端使用				

Set Baud Rate: [115200], Data Bit:[8],Parity Bit: [None] ,Stop Bit: [1]. Flow control: [None]. After setting, click [Confirm], then click [Apply and Connect], then click [Confirm].

串行口设置 端口号(C): COM1 ・ 波特率(B): 15200 ・ 数据位(D): 8 位 ・ 奇偶校验(P): 元 ・ 停止位(S): 1 位 ・ 流望控制(P): 元 ・
端口号(C): COM1 「 波特率(B): 15200 「 数据位(D): 8 位 「 奇偶校验(P): 元 「 停止位(S): 1 位 「 確定(D) 取消(A)
波特率 (B): 15200 ▼ 数据位 0): 8 位 ▼ 奇偶校验 (P): 元 ▼ 停止位 (S): 1 位 ▼ 流量控制 (P): 元 ▼
数据位 00): 8 位
奇偶校验 @): 元 停止位 (S): 1 位 流量控制 @): 元 承定 (D) 取消 (A)
停止位 (S): 1 位 ▼ 流 壁控制 (F): 元 ▼ 确定 (D) 取消(A)
流 量控制 (P): 元
<u>确定(0)</u> 取消(A)

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🤤 迷你终端 - COM1:115200,n,8,1 - W:\光盘\QY-9G45EK\Linux 2.6.30\工具软件\MiniComm\Mini 💶 💷 🗾 🗡
文件(E) 查看(V) 通讯(C) 帮助(H)
COM1:115200,n,8,1 🖹 LO(9:46:17
The debug UART will print the following information:
Il 115200 - SecureCRI
File       Edit       View       Options       Transfer       Script       Tools       Help         Image: State of the
RomBOOT RomBOOT
Connect to remote host         Serial: COM1, 115200         3, 1         31 Rows, 80 Cols         VT100         CAP         NUM

Now, open [SAM-BA V2.12.exe], it will recognize the [usbserial\com6] device, it means the

PC has recognized the development board.

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SAM-BA 2.12	
Select the connection :	\USBserial\COM6 🔹
Select your board :	at91sam9g45-ekes 🔻
JLink speed :	default 🔻
JLink TimeoutMultiplier :	0 🔻
	Customize lowlevel
Connect	Exit

If PC could not recognize the development board, please check the issues according to Chapter 5.1.

### **1.2.2. SD Card Burning Preparation**

One SD card, one SD card reader, Linux environment in PC. Here ,we take [ubuntu 12.04] as an example. If without it, please refer to Ubuntu Installation for Virtual Machine Manual to set up. Log on by non [root] user. If using [root] account, you do not need to use[sudo]command.

By SD card reader, insert SD card into PC, then it will be recognized. If it could be recognized on PC, click USB icon in Virtual Machine. Select [connect].



After connecting, it will generate the relevant device node [/dev/sdx]in [Ubuntu 12.04 /dev]directory. Including ,[x] means actual circumstance, it could be [a,b...]. If there are many partitions in SD card, it will generate [sdx1,sdx2,...] in [/dev]. Here you could use [df]command to search.

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st@st-virtual-machine:~/work/image\$ df							
文件系统		「己用」	() 可用	已用%	挂载点		
/dev/sda1	40803120	10222888	28535560	27%	/		
udev	505116	4	505112	1%	/dev		
tmpfs	204964	1292	203672	1%	/run		
none	5120	0	5120	0%	/run/lock		
none	512404	80	512324	1%	/run/shm		
/dev/sdb1	3864656	77448	37 <u>8</u> 7208	3%	/media/31F2-636B		
st@st-virtual-machine:~/work/image\$							

The above picture indicates that the device node is [/dev/sdb1] which has inserted the SD

card. The actual circumstance is accordance with the search result.

In [ubuntu 12.04], please use [dd] command to clear MBR information and partition

information.

\$ sudo dd if=/dev/zero of=/dev/sdb1 bs=10M count=1

Use [fdisk] command to create boot partition, according to hint information, input [p] to show partition information. Then input [n] to create a new partition and set partition size. Then input [t] to assign partition format [FAT16], after finish setting, you could input [p] to check the current setting partition list. After setting correct, you could input [w], write partition information into the SD card, or input [q] to give up the current setting then exit.

\$ sudo fdisk /de	ev/sdb1		20		
Command (m	for help): p				
Disk /dev/sdb1	: 2002 MB, 20	02780160 byte	es		
11 heads, 10 se	ctors/track, 35	560 cylinders			
Units = cylinde	ers of 110 * 512	2 = 56320 byte	es		
Sector size (log	cical/physical):	512 bytes / 51	12 bytes		
I/O size (minin	num/optimal): :	512 bytes / 512	2 bytes		
Disk identifier:	0x0000000				
Device Boot	Start	End	Blocks	Id	System
Command (m	for help): n				
Command action	on				
e extend	ed				
p primar	y partition (1-4	4)			
p					
Partition numb	er (1-4): <b>1</b>				
First cylinder (	<u>1-3556</u> 0, defau	lt 1):			
Using default v	alue 1				
т ( 1° 1 ,	1. 1	$(\mathbf{U} \mathbf{M} \mathbf{M} \mathbf{C})$	(1 25560 1	C 1.	25560

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Command (m	for help): <mark>t</mark>				
Selected partition	on 1				
Hex code (type	L to list codes):	6			
Changed system	n type of partition	on 1 to 6 (FAT	16)		
Command (m	for help): p				
Device Boot	Start	End	Blocks	Id S	System
/dev/sdb1	1	1193	65610	6	FAT16
Command (m	for help): w				
The partition tal	ble has been alte	ered!			
Calling ioctl() to	o re-read partition	on table.			
Format partition	, and mount $\circ$				
\$ sudo umount /	/dev/sdb1				
\$ sudo mkfs.ms	dos /dev/sdb1				
\$ sudo mount -t	vfat /dev/sdb1	/mnt			

CD path: CD\Image file\dataflash boot, copy all images to [ubuntu 12.04]directory. Here, we take[~/work/image] as an example. Then use the following command to copy the image and burning tool to [/mnt]directory.

\$ sudo cp –rf ~/work/image /mnt
----------------------------------

\$ ls /mnt



Finish copying, then umount.

# sudo umount /mnt

Pull out SD card, then insert it into SD slot MCI0(J16) on development board. If inset it into J17, you could not boot from SD card.

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## **1.3. Image Illustration**

#### 1.3.1. Dataflash Boot

Existing Path: CD\Image File\datafalsh boot

				7
帮助(日)				
				: :
名称	修改日期	类型	大小	
🙀 at91sama5d3xek-dataflashboot-ubo	2013/12/19 18:45	BIN 文件	5 KB	
🙀 boot.bin	2013/12/19 18:48	BIN 文件	12 KB	
env.txt	2013/12/19 19:08	文本文档	1 KB	
🙀 flash_tool.bin	2013/12/19 18:54	BIN 文件	291 KB	
🗊 iac-a5d3x-v2.x_linux_dataflash.tcl	2013/12/6 11:18	Altium Script Do	6 KB	
iac-a5d3x-v2.x_linux_dataflash_autofla	2013/12/3 14:51	Windows 批处理	1 KB	
rootfs.ubi	2013/12/26 16:38	UBI 文件	43,776 KB	
sama5d34ek.dtb	2013/12/27 7:37	DTB 文件	22 KB	
🙀 u-boot.bin	2013/12/19 18:50	BIN 文件	290 KB	
uImage	2013/12/27 7:34	文件	2,582 KB	

				100
Under burning Image and fil	e exp	lanation:		

Image Name	Image Meaning	Target	Explanation
		Address	
at91sama5d3xek-dataflashboot-uboot-3.5.4.bin	Primary Bootstrap	0x0	None
u-boot.bin	Secondary Boostrap	0x8400	None
sama5d34ek.dtb	Device Tree	0x180000	None
uImage.bin	Kernel	0x200000	None
rootfs.ubi	File System	0x80000	None
iac-a5d3x-v2.x_linux_dataflash_autoflash.bat	Auto-burn [bat]script	None	Only by automatic burning.
iac-a5d3x-v2.x_linux_dataflash.tcl	Burn [tcl] script	None	Only by auto- burning.

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boot.bin	SD card bootstrap		Only by SD Card burning.
flash_tool.bin	SD card burning tool	None	Only by SD Card burning
env.txt	SD card to burn	None	Only by SD Card burning
	environment variables		

# 1.3.2. Nandflash Boot

Existing Path: CD\Image File\Nandflash Boot

(T)	帮助(H)				
					:== 👻
	名称	修改日期	类型	大小	
	🙀 at91sama5d3xek-nandflashboot-ubo	2013/12/19 18:46	BIN 文件	8 KB	
	🗊 iac-a5d3x-v2.x_linux_nandflash.tcl	2013/12/6 11:17	Altium Script Do	5 KB	
1	🚳 iac-a5d3x-v2.x_linux_nandflash_autofl	2013/12/6 9:20	Windows 批处理	1 KB	
	📄 logfile.log	2013/12/23 17:10	文本文档	48 KB	
	📄 rootfs.ubi	2013/12/26 16:38	UBI 文件	43,776 KB	
	sama5d34ek.dtb	2013/12/27 7:37	DTB 文件	22 KB	
	🙀 u-boot.bin	2013/12/19 18:52	BIN 文件	291 KB	
	📄 uImage	2013/12/27 7:34	文件	2,582 KB	

I In	der	hurning	Image	and	file	eyn	lanation	•
UII	uci	ourning	mage	anu	m	UAP	lanation	•

Image Name	Image Meaning	Target	Explanation
		Address	
at91sama5d3xek-nandflashboot-uboot-3.5.4.bin	Primary Bootstrap	0x0	None
u-boot.bin	Secondary Bootstrap	0x4000	None
sama5d34ek.dtb	Device Tree	0x180000	None
uImage.bin	Kernel	0x200000	None
rootfs.ubi	File System	0x80000	None

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IAC ASD2 Wit Linux S	ustam Imaga Duming Manual
IAC-ADD3X-KILLIIIUX S	ystem mage burning Manual

iac-a5d3x-v2.x_linux_nandflash_autoflash.bat	Auto-burn [bat]script.	None	Only by auto-burning.
iac-a5d3x-v2.x_linux_nandflash.tcl	Image burning	None	Only by auto-burning.
	command ,[tcl]script		

## **II**.Burn Image From Dataflash

### 2.1. Burn Procedure By Manual

## 2.1.1. Initialize Dataflash

After the PC recognizes the board, click [SAM-BA V2.12]software. If it appears [\USBserial\COM11] when connecting to the USB port, it means USB connection is ok. Please refer to the Quarter 4 to check the problems.

Reconnect to the J1 jumper cap on core board;

After the mainboard selected the [at91sama5d3x-ek], click [Connect] button to enter into the main interface.

SAM-BA 2.12	
Select the connection :	\USBserial\COM6 🔹
Select your board :	at91sama5d3x-ek 💌 💌
JLink speed :	default 🔻
JLink TimeoutMultiplier :	0 🔻
	Customize lowlevel
Connect	Exit

Open the main interface, on the basis of the procedures in red color to enable and erase [dataflash].

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💽 SAM-BA 2.12	- at91sama5d	l3x-ek				
File Script File	Help					
— at91sama5d3x Memory	r Display					
Start Address : 0:	x300000 Ref	resh   Display	format		Applet trace	s on DBGU
Size in byte(s) : On	¢100	C ascii	C 8-bit C 16	-bit 🖲 32-bit	infos _	Apply
0x00300000	0x00000004	OxFFFFFFFF	OxFFFFFFFF	OxFFFFFFFF		~
0x00300010	OxFFFFFFFF	OxFFFFFFFF	OxFFFFFFFF	Oxffffffff		
0x00300020	OxFFFFFFFF	OxFFFFFFFF	OxFFFFFFFF	OxFFFFFFFF		
0x00300030	Oxfffffff	OxFFFFFFFF	OxFFFFFFFF	Oxffffffff		
0x00300040	Oxffffffff	OxFFFFFFFF	OxFFFFFFFF	OxFFFFFFFF		
0x00300050	Oxffffffff	OxFFFFFFFF	OxFFFFFFFF	Oxffffffff		
<						>
Send File Name Receive File Name Address	:	Size (For Receive	File) : 0x1000		Send File Receive File Compare sent file with me	mory
Scripts Enable Dataflash Erase All Send Boot File DadSet DF in Power-Df SAN (sam-ba_2.12) 1 % (sam-ba_2.12) 1 %	(SPIO CSO) (SPIO CSO)	e (Binary mode)	• (5) Execute (	3		
					\USBserial\COM11 Board : at91	sama5d3x-ek 🗸

If it shows error as the following picture, please confirm J1 jumper cap connected.

ile Script File Help		
at91sama5d3x Memory Display		
itart Address : 0x300000 Refresh ize in byte(s) : 0x100 Cascii C 8-bit C 16-bit @ 32-bit		Applet traces on DBGU
0x00300000 0x00000004 0xFFFFFFF 0xFFFFFFF 0xFFFFFFF		19.
0x00300010 0xFFFFFFFF 0xFFFFFFF 0xFFFFFFF 0xFFFFFFF		
0x00300020 0xFFFFFFFF 0xFFFFFFF 0xFFFFFFFF 0xFFFFFFFF		
		•
Download / Upload File Send File Name :		Send File
Download / Upload File Send File Name :		Send File
Download / Upload File Send File Name : Receive File Name :	R	Send File eceive File
Download / Upload File         Send File Name :         Receive File Name :         Address :       0x0         Size (For Receive File) :       0x1000         byte(s)	R Compare s	Send File eceive File ent file with memory
Download / Upload File Send File Name : Receive File Name : Address : 0x0 Size (For Receive File) : 0x1000 byte(s) Scripts	R Compare s	Send File eceive File ent file with memory
Download / Upload File Send File Name : Receive File Name : Address : 0x0 Size (For Receive File) : 0x1000 byte(s) Scripts Enable Dataflash (SPI0 CS0)	R Compare s	Send File eceive File ent file with memory
Download / Upload File       Send File Name :         Send File Name :       Image: Constraint of the send file of the	R Compare s	Send File eccive File ent file with memory
Download / Upload File Send File Name : Receive File Name : Address : 0x0 Size (For Receive File) : 0x1000 byte(s) Scripts Enable Dataflash (SPI0 CS0) T Execute m-ba_2.12) 1 %	R Compare s	Send File eccive File ent file with memory
Download / Upload File Send File Name : Receive File Name : Address : 0x0 Size (For Receive File) : 0x1000 byte(s) Scripts Enable Dataflash (SPI0 CS0) T Execute m-ba_2.12) 1 % m-ba_2.12) 1 % DATAFLASH::Init 0 DATAFLASH::Init 0 DATAFLASH::Init 0 DATAFLASH::Init 0	R Compare s	Send File eccive File ent file with memory
Download / Upload File Send File Name : Receive File Name : Address : 0x0 Size (For Receive File) : 0x1000 byte(s) Scripts Enable Dataflash (SPI0 CS0) T Execute m-ba_2.12) 1 % m-ba_2.12) 1 % DATAFLASH::Init 0 DATAFLASH::Init 0 (trace level : 4) .oading applet applet-dataflash-sama5d3x.bin at address 0x20000000	R Compare s	Send File eceive File ent file with memory
Download / Upload File Send File Name : Receive File Name : Address : 0x0 Size (For Receive File) : 0x1000 byte(s) Scripts Enable Dataflash (SPI0 CS0) T Execute m-ba_2.12) 1 % DATAFLASH::Init 0 DATAFLASH::Init 0 (trace level : 4) .oading applet applet dataflash sama5d3x.bin at address 0x20000000 Script error: Error Initializing DataFlash Applet (Can't detect known device) m-ba_2 12) 1 %	R Compare s	Send File eceive File ent file with memory

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#### 2.1.2. Burn Primary Boot Image

Execute the following procedures, please find out the directory which the primary bootstrap image locates in the interface, select

[at91sama5d3xek-dataflashboot-uboot-3.5.4.bin], then burn.



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# 2.1.3. Burn Secondary Bootstrap

After finish burning, execute the following procedures, fill in the secondary bootstrap address[0x8400] which is used for burning secondary bootstrap. Open the location where is [u-boot.bin] locates, select [u-boot.bin]image, then burn it into dataflash.

							_
	查找范围(I):	🛅 dataflash		<b>v</b> G	ø 🖻 🖽	) <del>.</del>	
SAM-BA 2.12         - at91s:           File         Script File         Help           at91sema5d3x         Memory Display           Start Address :         0x300000           Size in byte(s) :         0x100           0x00300000         0x000000           0x00300010         0xFFFFF           0x00300020         0xFFFFF           0x00300030         0xFFFFF           0x00300040         0xFFFFF           0x00300050         0xFFFFF	Fecent Fecent 桌面 政的文档 武的电脑	<ul> <li>● at91sama5d3x</li> <li>● urboot</li> <li>④</li> <li>● 火型:</li> <li>修改E 大小:</li> </ul>	ek-dataflashboot-uboot UltraEdit Document (,1 到月: 2013-11-13 11:38 289 KB	-3.5.4		31	
DDRAM DataFlash AT45DB/DCB	並山沃益	文件名 (M): 文件类型 (I):	u-boot Bin Files (*. bin)		*	⑤打开 (0) 取消	
Send File Name :				6	Send F	ile	
Receive File Name :	2		<b>2</b>		Receive	File	
Address : OxO8400 🗸	😏 Size (For R	eceive File) : 🛛	x1000 byte(s)	Compar	e sent fil	e with memory	
Scripts Send Boot File		▼ Exe	cute				
(sam-ba_2.12) 1 % (sam-ba_2.12) 1 % GENERIC::Send GENERIC::SendFile F:/temp/IAC-AS	BootFileGUI	lash/at91sama5c	l3xek-dataflashboot-ubc	oot-3.5.4.bin a	at address	0x0	^
-I- File size : 0x1088 byte(s) -I- Writing: 0x0 bytes at 0x0 -I- 0x30880C bytes written b (sam-ba_2.12) 1 %	(buffer addr : O y applet	x308B0C)					
				\USBserial\	COM11 Bos	ard : at91sama5d3x-	ek 🗸

### 2.1.4. Initialize Nanaflash

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Execute as sequence in red color, when executing the procedure<sup>③</sup>, it will pop up ECC Configuration Window as shown in Picture 2.6. Please make sure that you will configure ECC according to this picture. When finishing configuration, click [OK], then continue to execute the procedure <sup>④</sup>, then initialization is finished.

	Help						
t91sama5d3x Memor	y Display						
Start Address : 🛛	x300000 Re	efresh Display	format			Applet traces	on DBGU
ize in byte(s) : [	x100	C ascii	. () 8-bit () 16-	-bit 🖲 32-bit			кррту
0x00300000	0x0000004	OxFFFFFFFF	OxFFFFFFFF	OxFFFFFFFF			^
0x00300010	OxFFFFFFFF	OxFFFFFFFF	OxFFFFFFFF	OxFFFFFFFF			
0x00300020	OxFFFFFFFF	OxFFFFFFFF	OxFFFFFFFF	OxFFFFFFFF			
0x00300030	OxFFFFFFFF	OxFFFFFFFF	OxFFFFFFFF	OxFFFFFFFF			
0x00300040	OxFFFFFFFF	OxFFFFFFFF	OxFFFFFFFF	OxFFFFFFFF			
0x00300050	OxFFFFFFFF	OxFFFFFFFF	OxFFFFFFFF	OxFFFFFFFF			~
							>
Send File Name	2:			<u> </u>	Se	end File	
Send File Name	2:			<b>≧</b>	Se	end File	1
Send File Name Receive File Name	2 :	a: (a s :	<b>1</b> :1 ) (0.4000		Se Rec	end File eive File	
Send File Name Receive File Name Addres:	a : a : 5 : 0x0	Size (For Receive	e File) : Ox1000	byte(s)	Se Rec Compare sent	end File eive File t file with memo	ory
Send File Name Receive File Name Addres: -Scripts	e : e : s : 0x0	Size (For Receive	File) : Ox1000	byte(s)	Se Rec Compare sent	end File eive File t file with memo	ory
Send File Name Receive File Name Address -Scripts Enable NandFlash	a : [ a : ] 5 : [0x0	Size (For Receive	• File) : Ox1000	byte(s)	Se Rec Compare sent	end File eive File t file with memo	ory
Send File Name Receive File Name Address -Scripts Enable NandFlash Enable NandFlash Enable OS PMECC p	2 :	Size (For Receive	• File) : Ox1000	byte (s)	Se Rec Compare sent	end File eive File t file with memo	ory
Send File Name Receive File Name Address Scripts Enable NandFlash Enable NandFlash Enable OS PHECC p Brase All List Bad Blocks	a :	Size (For Receive	E File) : Ox1000	byte (s)	Se Rec Compare sent	end File eive File t file with memo	ory
Send File Name Receive File Name Address Scripts Enable NandFlash Enable OS PMECC p Erase All List Bad Blocks Fmecc configuration	a :	Size (For Receive	E File) : 0x1000	byte (s)	Se Rec Compare sent	end File eive File t file with memo	xry
Send File Name Receive File Name Address Scripts Enable NandFlash Enable OS PMECC p Erase All List Bad Blocks Fmecc configurati Scrub NandFlash Send Boot File	2 :	Size (For Receive	<pre>File) : 0x1000  Execute </pre>	byte (s)	Se Rec Compare sent	end File eive File t file with memo	xry
Send File Name Receive File Name Address Scripts Enable NandFlash Enable OS PMECC p Erase All List Bad Blocks Fmecc configurati Send Boot File The Da 2.12) 1 % N	2 :	Size (For Receive	<ul> <li>File) : 0x1000</li> <li>Execute</li> <li>Execute</li> </ul>	byte (s)	Se Rec Compare sent	end File eive File t file with memo	ary
Send File Name Receive File Name Address Scripts Enable NandFlash Enable OS PMECC p Erase All List Bad Blocks Fmecc configurati Send Boot File m-Da_2.12) 1 % N Jser canceled!	a : a : a : b : b : b : b : b : c :	Size (For Receive	<ul> <li>File) : 0x1000</li> <li>Execute</li> <li>DER 0xc0902405</li> </ul>	byte (s)	Se Rec Compare sent	end File eive File t file with memo	ory
Send File Name Receive File Name Address Scripts Enable NandFlash Enable OS PMECC p Erase All List Bad Blocks Fmecc configurati Send Boot File m-Da_2.12) 1 % N Jser canceled! m-Da_2.12) 1 %	a : a : a : b : ox0 ar an eters (3) on ANDELASH::Nano	Size (For Receive dHeaderValue HEA)	Execute	byte (s)	Se Rec Compare sent	end File eive File t file with memo	xry
Send File Name Receive File Name Address Scripts Enable NandFlash Enable OS PMECC p Erase All List Bad Blocks Fmecc configurati Send Boot File T-Da_2.12) 1 % N Jser canceled! m-ba_2.12) 1 %	a : a : b : b : c :	Size (For Receivo DHeaderValue HEA)	Execute Execute	byte (s)	Se Rec Compare sent	end File eive File t file with memo Board : at9150	2ry
Send File Name Receive File Name Address Scripts Enable NandFlash Enable OS PMECC p Brase All List Bad Blocks Pmecc configurati List Bad Blocks Send Boot File m-Da_2.12) 1 % N Jser canceled! m-Da_2.12) 1 %	a : a : b : c :	Size (For Receive	E File) : 0x1000 Execute	byte (s)	Sa Rec Compare sent	end File eive File t file with memo Board : at9150	ory

🖙 ECC configuration
Ecc type
⑦ pmecc ○ software ecc ○ no ecc
Pmecc boot header configuration
fumber of sectors per page 4
mber of ECC bits required 4
Size of the ECC sector 💿 512 🔿 102
Ecc offset 36 📃 Edit(spareSize > 64)
☐ Trimffs
OKCancel

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#### 2.1.5. Burn Device Tree Image

As the following procedure sequence, fill in burning address: [0x180000], please find out the directory where the [sama5d34ek.dtb]image locates, then open it to burn,

	打开		?		
	查找范围( <u>I</u> ):	🗀 dataflash 💌	3 🗊 📂 🖽•		
	D Recent	<ul> <li>at91 sama5d3xek-dataf1ashboot-uboot-3.5.4</li> <li>boot</li> <li>env</li> <li>anv</li> </ul>			
SAT-BA 2. 12           File         Script Fil           at91sama5d3x         Memory           Start Address :         Size in byte(s) :           0x00300000         0x00300010           0x00300020         0x00300030           0x00300030         0x00300030	● 東面 一 求的文档 一 求的电脑 金山快盘	Flash_tool Flash_tool Siac=a5d3x=v2. x_linux_dataflash siac=a5d3x=v2. x_linux_dataflash_autoflash rootfs.ubi sma55d34ak.dtb u-boot u-boot uTmage		traces on DBGU	2
0x00300050	AT45DB/DCB EEF	文件名 (M): sama5d34ek 文件类型 (I): All Files (*.*) ④ PROM AT24 Napd@lash NorFlash OTP One-wij	▼ ⑤打开 (2) ▼ 取消 re EEPROM SRAM SerialFlas	h AT25/AT26	
Download / Uplo Send File Na Receive File Na Addre	oad File me : me : ss : 0x0180000(2)	) Size (For Receive File) : 0x1000 byte(s	Send Compare sent fi	File 7	
Scripts Enable NandFlas	h	T Execute			
-I- NANDFLASH::Init -I- Loading applet aj -I- Memory Size : 0) -I- Buffer address : -I- Buffer size: 0x20 -I- Applet initializatio (sam-ba_2.12) 1 %	: (trace level : 4) oplet-nandflash-s (10000000 bytes 0x20010BA8 000 bytes on done	sama5d3x.bin at address 0x20000000			
			\USBserial\COM14 Bo	ard : at91sama5d3x-ek 🗸	

## 2.1.6. Burn Kernel Image

According to the procedures in red color, fill in [0x200000] in the burning address for [uImage.bin], then find out the image location in the opened directory, select then to burn.

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	打开				? 🔀	
	查找范围( <u>I</u> ):	🚞 dataflash	~	G 🤌 📂 🖽	•	
SAT-BA         2.12           File         Script File           at91sama5d3x         Memo           Start         Address :           Size in byte(s) :         0x00300000           0x003000010         0x003000020           0x003000030         0x003000030           0x003000030         0x003000040	Recent 桌面 美的文档 我的电脑 金山快盘	<ul> <li>at91sama5d3xek-dataflash</li> <li>boot</li> <li>env</li> <li>flash_tool</li> <li>iac-a5d3x-v2.x_linux_dat</li> <li>iac-a5d3x-v2.x_linux_dat</li> <li>rootfs.ubi</li> <li>sama5d34ek.dtb</li> <li>u-boot</li> <li>uImage S</li> </ul>	boot-uboot-3.5.4 aflash aflash_autoflash			traces on DBGU
0x00300040		文件名 (M): uImage		~	打开 (1) 🔞	
<		文件类型(I): All Files	(*.*) (4)	~	取消	>
DDRAM DataFlash	AT45DB/DCB EEP	OM AT24 NandFlash NorFla	sh ] OTP ] One-wir	e EEPROM ] SRAM	SerialFlash AT	25/AT26 ]
Download / Uplo	ad File		辛苦い、クリン	- <u>@</u>	S J F:].	@ 1
Send File Nam Receive File Nam	ne : r:/temp/IAU-	R5D3X-V2.1/1RC-R5D3X-V2.2/±	/ hk/dataIIash/sa	······································	Receive Fil	
Addres	s : 0x0200000 (2	Size (For Receive File) :	0x1000 byte(s)	Comp	are sent file w	ith memory
Scripts						
Enable NandFlash	1	▼ Ex	ecute			
(sam-ba_2.12) 1 % : -I- Send File F:/temp GENERIC::SendFile F -I- File size : 0x5642 -I- Writing: 0x -E- Can't send data (sam-ba_2.12) 1 %	send_file {NandF p/IAC-A5D3X-V2. S:/temp/IAC-A5D byte(s) 5642 bytes at 0x 0x0000000f)	ash} "F:/temp/IAC-A5D3X-V2 L/IAC-A5D3X-V2.2/生产版/da IX-V2.1/IAC-A5D3X-V2.2/生产 L80000 (buffer addr : 0x2001	2.1/IAC-A5D3X-V2 taflash/sama5d34 r版/dataflash/sam 0BA8)	.2/生产版/datafla ek.dtb at address ia5d34ek.dtb at a	sh/sama5d34ek 0x0180000 ddress 0x18000	.dtb" 0x0180000 0 🔷 0
				\USBseria	1\COM14 Board	: at91sama5d3x-ek 🗸

# 2.1.7. Burn File System Image

ECC configuration in file system is different with the previous one. It needs reconfiguration. Before burning file system image, we need to configure ECC as the following parameters. Execute procedure③, it will pop-up ECC configuration window.

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💽 SAM-BA 2.12 - at91sama5d3x-ek	
File Script File Help	
at91sama5d3x Memory Display	Ecc type
Start Address : 0x300000 Refresh Display format-	pmecc C software ecc C no ecc     BGU
Size in byte(s) : Ox100 C ascii C 8-b	it Participation V
0x00300000 0x0000004 0xFFFFFFFF 0xFF	FI
0x00300010 OxFFFFFFF OxFFFFFFFF OxFF	FI lumber of sectors per page 4
0x00300020 OxFFFFFFF OxFFFFFFFF OxFF	Spare sizeb4
0x00300030 OxFFFFFFF OxFFFFFFFF OxFF	FI Size of the ECC sector @ 512 C 102
0x00300040 OxFFFFFFF OxFFFFFFFF OxFF	FI Ecc offset 36  Edit(spareSize > 64)
0x00300050 OxFFFFFFF OxFFFFFFFF OxFF	🔽 🔽 Trimffs
<	
DDRAM   DataFlash AT45DB/DCB   EEPROM AT24   NandFlash   NorF Download / Upload File Send File Name : F:/temp/IAC-A5D3X-V2.1/dataflash/uImag Receive File Name : Address : 0x0800000 Size (For Receive File)	e Send File Receive File Ox1000 byte(s) Compare sent file with memory
Scripts	
Enable OS PMECC parameters (2)	Gxecute
-I- 0x2000 bytes written by applet -I- Writing: 0x11AD0 bytes at 0x680000 (buffer addr : 0x2) -I- 0x11AD0 bytes written by applet (sam-ba_2.12) 1 % NANDFLASH::NandHeaderValue HEADER 0xct -I- User canceled! (sam-ba_2.12) 1 % NANDFLASH::NandHeaderValue HEADER 0xct (sam-ba_2.12) 1 %	0010BA8) 0902405 0902405
	\USBserial\COM11   Board : at91sama5d3x-ek 🗸

After configuring Nandflash ECC, according to the procedures in red color, fill in the address [0x800000] for [rootfs.ubi], open the location where the image locates, select image, then burn.

	打开		? 🔀
	查找范围(I):	🔁 dataflash 🕑 🔇 🎓 🛛	🤊 🛄 •
SAI-BA 2.           File Script F           at91sama5d3x M           Start Address           Size in byte(s)           0x003000           0x003000           0x003000           0x003000	Recent 夏面 政的文档 政的电脑 企画 金山快盘	<pre>@ at91sama5d3xek-dataflashboot-uboot-3.5.4 @ boot @ flash_tool Si iac-a5d3xrV2.x_linux_dataflash</pre>	et traces on DBGU s Apply
0x003000		文件名 (M): rootfs	▼ 打开 @ ⑥
<		文件类型(T): All Files (*.*) ④	▼ 取消 >
DDRAM DataFla	sh AT45DB/DCB ]	EEFROM AT24 NandFlash NorFlash OTF One-wire EEFROM	M   SRAM   SerialFlash AT25/AT26
Send File	Name : F:/temp/]	IAC-A5D3X-V2. 1/IAC-A5D3X-V2. 2/生产版/dataflash/uIm 🚄 _	Send File 🕜
Receive File	Name :		Receive File
Add	hress :  0x0800000	) (2) Size (For Receive File) : [0x1000 byte(s)	Compare sent file with memory
Scripts	1		
	14511	• Execute	
-I- Writing: -I- 0x20000 -I- Writing: -I- 0x20000 -I- Writing: -I- 0x56F8 (sam-ba_2.12) 1	: 0x20000 bytes a 0 bytes written b 0x20000 bytes a 0 bytes written b : 0x56F8 bytes a bytes written by %	at 0x440000 (buffer addr : 0x200108A8) y applet at 0x460000 (buffer addr : 0x200108A8) y applet t 0x480000 (buffer addr : 0x200108A8) applet	~
			\USBserial\COM14 Board : at91sama5d3x-ek 🗸

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#### **2.1.8. Finish Burning**

It needs time to burn file system. Please be patient.

After finishing, please close [SAM-BA], pull out USB cable, power on the development board again. You will see the printed information when the image is running in the debug UART.

#### 2.2. Auto Burning Procedure

Before burning image, disconnect jumper cap [J1] at first. Please make sure that the current development board has been connected with the PC and it has been recognized in PC. Then re-connect the jumper cap [J1].

There are two scripts in dataflash boot image directory in CD. Including, [iac-a5d3x-v2.x\_linux\_dataflash\_autoflash.bat] is [bat]script. It call [samba]program to analyze [tcl]script;[ iac-a5d3x-v2.x\_linux\_dataflash.tcl] achieve the specific image burning command, as FCHNOLOG shown:

```
名称・
🗃 at91 sama5d3xek-dataflashboot-uboot-3. 5. 4
  boot
  env
🗃 flash_tool
iac-a5d3x-v2.x_linux_dataflash
iac-a5d3x-v2.x_linux_dataflash_autoflash
🚾 rootfs. ubi
📷 sama5d34ek. dtb
🗃 u-boot
🖬 uImage
```

Double click [iac-a5d3x-v2.x\_linux\_dataflash\_autoflash.bat] script, it shows the following

picture. It means

[at91sama5d3xek-dataflashboot-uboot-3.5.4.bin][u-boot.bin],[sama5d34ek.dtb],[uImage.bin],[root

fs.ubi] will be burnt into the development board in turn.

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C:\WINDOWS\system32\cmd.exe	- 🗆 ×	
F:\temp\IAC-A5D3X-V2.1\dataflash>sam-ba.exe \usb\ARM0 AT91SAMa5d3x-EK iac- v2.x_linux_dataflash.tcl 1>logfile.log 2>&1	a5d3x−	
谷歌拼音 半:	<b>_</b>	1

It needs 3 minutes for burning standard configuration image. Be patient.

After burning, it will popup [logfile] file, as shown.

You could check whether the burning process is successful by this file.

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🗍 logfile.log - 记事本		
文件(E) 编辑(E) 格式(Q) 查看(V) 帮助(H)		
-I- Writing: 0x20000 bytes at 0x31A0000 -I- 0x20000 bytes written by applet -I- Complete 97%	(buffer addr : 0x2001052C)	*
-I- Writing: 0x20000 bytes at 0x31C0000 -I- 0x20000 bytes written by applet -I- Complete 97%	(buffer addr : 0x2001052C)	
-I- Writing: 0x20000 bytes at 0x31E0000 -I- 0x20000 bytes written by applet -I- Complete 98%	(buffer addr : 0x2001052C)	
-I- Writing: 0x20000 bytes at 0x3200000 -I- 0x20000 bytes written by applet -I- Complete 98%	(buffer addr : 0x2001052C)	
-I- Writing: 0x20000 bytes at 0x3220000 -I- 0x20000 bytes written by applet -I- Complete 98%	(buffer addr : 0x2001052C)	
-I- Writing: 0x20000 bytes at 0x3240000 -I- 0x20000 bytes written by applet -I- Complete 99%	(buffer addr : 0x2001052C)	
-I- Writing: 0x20000 bytes at 0x3260000 -I- 0x20000 bytes written by applet -I- Complete 99%	(buffer addr : 0x2001052C)	
-I- Writing: 0x20000 bytes at 0x3280000 -I- 0x20000 bytes written by applet -I- Complete 99%	(buffer addr : 0x2001052C)	
-I- Writing: 0x20000 bytes at 0x32A0000 -I- 0x20000 bytes written by applet -I- === DONE. ===	(buffer addr : 0x2001052C)	

At this moment, the image burning is finished. Please pull out the USB cable. Then power on again, you will find out the printed information when the images are in the boot process from the debug UART.

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🕞 115200 - S	SecureCRT		3
File Edit	View Options Transfer Script Tools Help		
19 19 C	🕼 🔏 Enter host <alt+r></alt+r>		Ŧ
₩ 115200		٥	Þ
y 312, idx UBIFS DBG UBIFS DBG UBIFS DBG UBIFS DBG UBIFS DBG UBIFS DBG UBIFS DBG UBIFS DBG UBIFS DBG UBIFS DBG VFS: Mount devtmpfs: Freeing ir UBIFS DBG PID 545 Starting L Populating at91_can f udevd[569] done Starting p Initializi	<pre>1x 188 5 (pid 1): mount_ubifs: dead watermark: 2048 5 (pid 1): mount_ubifs: dark watermark: 6144 5 (pid 1): mount_ubifs: LEB overhead: 2656 5 (pid 1): mount_ubifs: max. dark space: 11089920 (10830 KiB, 5 (pid 1): mount_ubifs: maximum bud bytes: 8388608 (8192 KiB, 8 5 (pid 1): mount_ubifs: BG commit bud bytes: 6815744 (6656 KiB, 6 5 (pid 1): mount_ubifs: current bud bytes: 0 (0 KiB, 0 MiB) 5 (pid 1): mount_ubifs: current bud bytes: 0 (0 KiB, 0 MiB) 5 (pid 1): mount_ubifs: commit number: 35155 5 (pid 1): mount_ubifs: commit number: 0 1ted root (ubifs filesystem) readonly on device 0:11. 1 mounted init memory: 156K 5 (pid 545): ubifs_bg_thread: background thread "ubifs_bgt0_0" st 1 logging: OK user init: OK 1 ng /dev using udev: IPv6: ADDRCONF(NETDEV_UP): eth0: link is not 1 f000c000.can: can0: writing AT91_BR: 0x00200561 2]: starting version 182 portmap: done 2 ing random number generator done. network</pre>	, 10 mib 3 mib) 5 mib) carted, ready	
Starting v Starting t	vsftpd: OK telnetd: OK		
Welcome to sama5d3x 1 [root@sama	to IAC-A5D3x-V2.x login: root ma5d3x /root]# ∎		-
Ready	Serial: COM1, 115200 31, 24 31 Rows, 80 Cols VT100	CAP NUM	1. 

When it is in [sama5d3x login], it means that the system has been burnt correctly. Input

[root] ,then enter into file system.

### 2.3. SD Card Burning Procedure

If it is the first time to burn the image, or there is no bootstrap in dataflash. You just need to insert the SD card to J20. Connect J1 jumper cap, power on, then the system will read data from the SD card, and burn the boot image from the dataflash into the relevant medium. Finish burning, pull out the SD card, reboot the development board, the system will boot from dataflash, then enter into the file system.

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## III. Nandflash To Burn Image

## **3.1. Procedures For Burning By Manual**

### 3.1.1. Initialize Nandflash

After the PC recognizes the development board, click [SAM-BA V2.12] software. If it shows [\USBserial\COM11] in USB port in connection, it means the USB are connected well. Or you could check the problems by referring to Quarter 4.

Connect [J1] jumper cap on core board again, after selecting [at91sama5d3x-ek], click [Connect] button, then enter into the main interface.

SAM-BA 2.12			x
Select the connection :	\USBserial\C	OM6 🔻	
Select your board :	at91sama5d3	<mark>}x-ek</mark> ▼	
JLink speed :	default	Ŧ	
JLink TimeoutMultiplier :	0	Ŧ	
	🗌 Custo	mize lowlevel	
Connect		Exit	

Execute as the sequence in red color, when executing procedure<sup>(3)</sup>, it will popup ECC Configuration Window, as Picture 3.3 shown:

Please make sure that you have configured ECC, after

configuring, click [OK], continue to execute procedure<sup>(4)</sup>, now the initialization for nandflash is finished.

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SAN-BA 2.12	- at91sama	5d3x-ek					
File Script File	Help						
at91sama5d3x Memor	y Display						
Start Address : C	)x300000 F	Refresh   Display	format		AI	oplet traces on DBG	U-U
Size in byte(s) : 0	)x100	C ascii	C 8-bit C 16	-bit 🖲 32-bit	in	fos Apply	
0x00300000	0x00000004	OXFFFFFFF	OxFFFFFFFF	OxFFFFFFFF			^
0x00300010	OxFFFFFFFF	OxFFFFFFFF	OxFFFFFFFF	OxFFFFFFFF			
0x00300020	OxFFFFFFFF	OxFFFFFFFF	OxFFFFFFFF	OxFFFFFFFF			
0x00300030	OxFFFFFFFF	OxFFFFFFFF	OxFFFFFFFF	OxFFFFFFFF			
0x00300040	OxFFFFFFFF	OxFFFFFFFF	OxFFFFFFFF	OxFFFFFFFF			
0x00300050	OxFFFFFFFF	OxFFFFFFFF	OxFFFFFFFF	OxFFFFFFFF			~
<							>
-Download / Uploa Send File Name	d File				Send	File	
Receive File Name	2:			<b>2</b>	Receiv	e File	
Address	s : 0x0	Size (For Receive	File) : 0x1000	byte(s)	Compare sent fi	le with memory	
Scripts Enable NandFlash Enable OS PMECC p	2 parameters (3)		<ul> <li>Execute</li> </ul>				
Frase All [- [List Bad Blocks [- Pmecc configurati Scrub NandFlash - Send Boot File [- 4 sam-Da_2.12) 1 % N	on IANDFLASH::Nar	ndHeaderValue HEAL	JER 0xc0902405				~
I- User canceled!							
sam-ba_2.12) 1 %							

ECC configuration	
Ecc type	
● pmecc ○ software ecc ○ no ec	c
Pmecc boot header configuration	
fumber of sectors per page 4	•
Spare size 64	
umber of ECC bits required 4	-
Size of the ECC sector 📀 512	102     102
Ecc offset 36 📃 Edit(spareSize )	64)
☐ Trimffs	
OKCancel	·

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#### 3.1.2. Burn Primary Boot Image

Execute the following procedures, please find out the directory where is the primary boot image locates in the interface. Select [at91sama5d3xek-nandflashboot-uboot-3.5.4.bin] to burn.



## 3.1.3. Burn Secondary Bootstrap

After burning image, execute the following procedures, fill in the address[0x40000] for secondary bootstrap, open[u-boot.bin], select [u-boot.bin]image, then burn it into nandflash.

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![](_page_34_Picture_0.jpeg)

	打开						? 🛛	
	查找范围(L):	🛅 nandflash			• G 🕫	• 📰 🔊		
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SAM-BA 2. File Script F:	[] 夏面							
- at91sama5d3x Me Start Address Size in byte(s) 0x0030000 0x00300002	发的文档 我的文档 我的电脑							et traces on DBGU
0x0030003 0x0030004 0x0030005	金山快盘	文件名 (2): 文件类型 (1):	u-boot Bin Files (*.	bin)		×	打开 @) 🗿 取消	2
DDRAM ] DataFlas	h AT45DB/DCB ] E	EPROM AT24 Nan	dFlash   NorFla	sh   OTP   O	ne-wire EEPRO	M SRAM	SerialFlash	AT25/AT26
-Download / Up] Send File N	load File ame : F:/temp/IA	C-A5D3X-V2.1/IA0	C-A5D3X-V2.2/生	产版/nandfl	ash/u-t 🖨		Send Fi	le 🙆 👔
Receive File N	ame :						Receive F	le
Addr	ess : 0x40000 🤇	Size (For Re	ceive File) :	0x1000 b	oyte(s) _	Comp	are sent file	with memory
Scripts								
Scrub NandFlas	h		<u> </u>	ecute				
-I- Writing: ( -I- 0x2000 -I- Writing: ( -I- 0x2000 -I- Writing: ( -I- 0xA308 b (sam-ba_2.12) 1 %	Dx20000 bytes ar bytes written by Dx20000 bytes ar bytes written by DxA308 bytes at ytes written by a 6	: 0x420000 (buffe applet : 0x440000 (buffe applet 0x460000 (buffer ipplet	er addr : 0x200 er addr : 0x200 r addr : 0x2001	1108A8) 1108A8) .08A8)				
						(USBseria	LACUM11 Boar	d 🗧 at91sama5d3x-ek 🔽

## 3.1.4. Burn Device Tree Image

As the following procedures, fill in burning address:[0x180000], find out the directory where the [sama5d34ek.dtb] image locates, then open it to burn.

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Qiv	/an	g						
	TECHNOLOGY	0	<u> </u>	AC-A5D	<u>3x-Kit Lir</u>	<u>iux Sys</u> i	tem Image	e Burning Manua
	查找范围(L):	向 nandflash			V G 🖠	i 📂 🖽 -		-
SAT-BA 2. File Script F at91sama5d3x M Start Address Size in byte(s) 0x0030000 0x0030000 0x0030000	Recent 原面 美的文档 受助电脑	<ul> <li>at91sama5d3</li> <li>iac-a5d3x-v</li> <li>iac-a5d3x-v</li> <li>logfile</li> <li>rootfs.ubi</li> <li>sama5d34ek</li> <li>TempWmicBat</li> <li>u-boot</li> <li>uLmage</li> </ul>	3xek-nandfla x2. x_linux_n x2. x_linux_n dtb 5 tchFile	shboot-uboot- andfl ash andfl ash_auto	3.5.4 flash			et traces on DBGU s Apply
0x003000 0x003000 C DDRAM DataFlas	金山快盘	文件名 (M): 文件类型 (I): EEFROM AT24 Na	sama5d34e All Files andFlash No	k : (*.*) (4) orFlash   OTP	) One-wire EEF	YROM SRAM	打开 (1) (6) 取消 Serial Flass	h AT25/AT26
Download / Up: Send File N Receive File N	load File	Size (For	(1)	) · 0 <sub>2</sub> 1000	anto (c)		Send I Receive	File 7
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Scrub NandFlas	h		▼_	Execute				
-I- Erasing blocks -I- Erasing blocks -I- Erasing blocks -I- Erasing blocks -I- Erasing blocks -I- Erasing blocks	batch 2 batch 3 batch 4 batch 5 batch 6 batch 7							ď
(sam-ba_2.12) 1 %	6					USPeak	-1\COW11 Bo	and that 91 same 5 d3u sale
						(USDSEY)	ar (COMII DO	aru , atoisamaouox <sup>-</sup> ek a

# 3.1.5. Burn Kernel Image

According to the procedures in red color, fill in the burning address[0x200000] for[uImage.bin], find out where the image locates in the opened directory, select then burn.

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![](_page_36_Picture_0.jpeg)

		打开						? 🛛	]
		查找范围( <u>I</u> ):	눱 nandflash		*	G 🦻	جي 🥙		
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0: 0: 0: 0: 0: 0: 0:	×0030 ×0030 ×0030 ×0030 ×0030 ×0030	我的电脑 〇〇〇 金山快盘	文件名 @): 文件类型 (I):	uImage All Files (*.*)			<b>v</b>	打开 @) 6 取消	
DDRAM	DataF	lash AT45DB/DCB	EEPROM AT24	NandFlash NorFl	lash   OTP   O	ne-wire l	EEPROM ] S	RAM ] SerialFl	ash AT25/AT26
-Dow Rec	/nload / Send Fil eive Fil /	Upload File Le Name : F:/temp Le Name : Address : Ox20000	)/IAC-A5D3X-V2.1 10 ② Size (Po	() /IAC-A5D3X-V2.2/3 r Receive File) :	生产版/nandfl 0x1000 t	ash/sar Z nyte(s)		Sen Recei Compare sent	d File 7 ive File file with memory
Ser	ipts —								
Ser	ub Nandl	lash		▼	Execute				
(sam-ba -I- Seno GENERI -I- File : -I- -I- (sam-ba	a_2.12) d File F: C::Send size : 0) Writir 0x200 a_2.12)	1 % send_file {N /temp/IAC-A5D3; File F:/temp/IAC (5728 byte(s) ng: 0x5728 bytes 100 bytes written 1 %	JandFlash} "F://tr X-V2.1/IAC-A5D -A5D3X-V2.1/IA at 0x180000 (bu by applet	əmp/IAC-A5D3X-\ 3X-V2.2/生产版/n C-A5D3X-V2.2/生 iffer addr : 0x200	/2.1/IAC-A5D landflash/sam 产版/nandfla l10BA8)	3X-V2.2/ Ia5d34ek sh/sama5	生产版/na .dtb at ad 5d34ek.dtb	andflash/sama: dress 0x18000 o at address 0; seri al \COM11	5d34ek.dtb" 0x180000 0 00 x180000 Board : at91sama5d3x-ek

## 3.1.6. Burn File System Image

The ECC configuration is different with the previous one, it needs reconfiguring. So before burning file system image, you need configure ECC as the following parameters. Execute Step ③,it will popup ECC configuration window.

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![](_page_37_Picture_0.jpeg)

🔄 SAM-BA 2.12 - at91sama5d3x-ek		_ 🗆 🗙						
File Script File Help	ECC configuration							
— at91sama5d3x Memory Display								
Start Address : Ov300000 Befresh   Display form	a see type	s on DBGV						
Size in byte(s) : 0x100 C ascii C	e 📀 pmecc 🔿 software ecc 🖓 no ecc	Apply						
0x00300000 0x0000004 0xFFFFFFF 0x	Press hoot beader configuration	^						
0x00300010 OxFFFFFFFF OxFFFFFFFF Ox	F							
0x00300020 OxFFFFFFF OxFFFFFFFF Ox	Iumber of sectors per page 4							
0x00300030 OxFFFFFFF OxFFFFFFFF Ox	F mber of ECC bits required 4							
0x00300040 OxFFFFFFF OxFFFFFFFF Ox	F Size of the ECC sector 📀 512 C 102							
0x00300050 OxFFFFFFFF OxFFFFFFFF Ox	F Ecc offset 36	×						
<	✓ Trimffs	>						
DDRAM DataFlash AT45DB/DCB EEPROM AT24 NandFlash No Download / Upload File Send File Name : F:/temp/IAC-A5D3X-V2.1/IAC-A5D3X-V2.2/E/* FR/nandflash/ulm Send File Receive File Name : Address : 0x0200000 Size (For Receive File) : 0x1000 byte(s) Compare sent file with memory Scripts Enable 0S PMECC parameters 2 Execute 3								
I- 0x20000 bytes written by applet I- Writing: 0x20000 bytes at 0x440000 (buffer addr : 0x20010BA8) I- 0x20000 bytes written by applet I- Writing: 0xA308 bytes at 0x460000 (buffer addr : 0x20010BA8) I- 0xA308 bytes written by applet (sam-ba_2.12) 1 % NANDFLASH::NandHeaderValue HEADER 0xc0902405 (sam-ba_2.12) 1 %								

After configuring NANDFLASH ECC, according to the procedures in red color, fill in [rootfs.ubi] burning address [0x800000]. Open the image location, then select image to burn.

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![](_page_38_Picture_0.jpeg)

	打开							? 🛛	
	查找范围(I):	🚞 nandflash			~	00	📂 🛄 <del>-</del>		
SAI-BA         2.12           File         Script File           at91sama5d3x         Memor:           Start Address : 0         0           Size in byte(s) : 0         0           0x00300000         0x00300000           0x003000010         0x00300020           0x003000030         0x00300030	Fecent Fecent 夏面 数的文档 変動 変動 変動 変動 変動 変動 変動 変動 変動 変動	<ul> <li>at91sama5d3;</li> <li>iac=a5d3x=v/.</li> <li>iac=a5d3x=v/.</li> <li>logfile</li> <li>rootfs.ubi</li> <li>sama5d34ek.</li> <li>Temp¥micBat.</li> <li>u-boot</li> <li>uImage</li> </ul>	rek-nandflashb 2. x_linux_nand 2. x_linux_nand 5 htb htb	ooot-uboot-3 iflash iflash_autoi	3.5.4 El ash				races on DBGU
0x00300040 0x00300050		文件名 @): 文件类型 (I):	rootfs All Files (*	*.*)			*	打开 @ 6 取消	~
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Scripts									
Scrub NandFlash			▼ Exec	ute					
-I- Writing: 0/20 -I- 0x20000 byte: -I- Writing: 0x20 -I- 0x20000 byte: -I- Writing: 0x43 -I- 0x4308 bytes (sam-ba_2.12) 1 %	000 bytes at 0x- s written by app 000 bytes at 0x- s written by app 08 bytes at 0x4 written by appl	420000 (buffer a let 140000 (buffer a let 50000 (buffer ac et	ddr : 0x20010 ddr : 0x20010 ldr : 0x20010B	08A8) 08A8) 3A8)					
						\U5	Bserial	COM11 Board :	at91sama5d3x-ek 🗸

## 3.1.7. Finish Burning

It needs time to burn file system. Please be patient. When finish burning, close [SAM-BA], plug out USB cable. Power on the development board, you will see the printed information from the Debug UART when the images are running.

### **3.2. Auto- Burning Procedure**

Before burning image, please make sure that the current development board has been connected well. And it could be recognized by the PC.

There are two scripts in boot image directory in CD dataflash. IncludingAny question, please send E-mail : <a href="mailto:supports@qiyangtech.com">supports@qiyangtech.com</a>Sales E-mail :trade@qiyangtech.comWebsite:http://www.qiytech.com©2012 Qiyangtech Copyright

![](_page_39_Picture_0.jpeg)

[iac-a5d3x-v2.x\_linux\_nandflash\_autoflash.bat] is [bat] script. It achieves to call [samba]program to analyze [tcl]script; [iac-a5d3x-v2.x\_linux\_nandflash.tcl] achieves the specific burning image command, as the following picture in red color shown:

	名称 🔺
	🝘 at91 sama5d3xek-nandflashboot-uboot-3. 5. 4
	🔄 iac=a5d3x=v2.x_linux_nandflash>
	🧧 iac-a5d3x-v2.x_linux_nandflash_autoflash>
	🖬 rootfs. ubi
1	📷 sama5d34ek. dtb
	🍘 u-boot
	🖬 uImage

Double click [iac-a5d3x-v2.x\_linux\_nandflash\_autoflash.bat] script, it shows the following window. It means we have burnt [at91sama5d3xek-nandflashboot-uboot-3.5.4.bin] [u-boot.bin] [sama5d34ek.dtb] [uImage.bin] [rootfs.ubi] into development board.

![](_page_39_Picture_5.jpeg)

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![](_page_40_Picture_0.jpeg)

It needs some time. Please be patient.

Finish burning, it will popup [logfile] as shown:

You could check whether the burning process is successful by this file.

💪 logfile - 记事本	
文件 (E) 编辑 (E) 格式 (E) 查看 (Y) 帮助 (H)	
-I- Waiting	^
-I- TCL platform : Windows NT	
-I- SAM-BA 2.12 on : windows	
current connection is \usb\ARM0, \\usb\\ARM0 to be matched	
-I- Retrieved arguments from command line :	
-I- argv 0 : \usb\ARM0	
-I- argv 1 : AT91SAMa5d3x-EK	
-I- argv 2 : iac-a5d3x-v2.x_linux_nandflash.tcl	
0	
\USBserial\COM11	
-I- Connection : \USBserial\COM11 (target(comType) = 0)	
-I- Board : at91sama5d3x-ek	
-I- Traces Level : 4	
-I- target(handle) : 28277128	
Read device Chip ID at 0xfffff240 get 0x00000000	
Read device Chip ID at 0xffffee40 get 0x8a5c07c2	
-I- Found processor : at91sama5d3x (Chip ID : 0x8a5c07c2)	
sourcing device file D:/Program Files/Atmel/sam-ba_2.12/sam-	
ba.exe//tcl_lib/devices/at91sama5d3x.tcl	
sourcing board description file D:/Program Files/Atmel/sam-ba_2.12/sam-	
ba.exe//tcl_lib/at91sama5d3x-ek/at91sama5d3x-ek.tcl	
-I- Loading applet applet-lowlevelinit-sama5d3x.bin at address 0x308000	
-I- Memory Size : 0x0 bytes	
-I- Buffer address : 0x4	
-I- Buffer size: 0x0 bytes	
-I- Applet initialization done	
-I- Low level initialized	
-I- External RAM Settings : extRamVdd=0, extRamType=1, extRamDataBusWidth=16,	
extDDRamModel=1	~

At this moment, the burning is finished. Please pull out the USB cable. Then power on again, you could see the printed information when it is in the boot progress from the debug UART.

### **IV.Update Image By Network**

For the development board which has been burnt the image [u-boot.bin] [sama5d34ek.dtb] [uImage] [rootfs.ubi]. We have provided the methods to introduce how to update the image by network.

## 4.1. Preparation

There is [tftp] server software in windows of PC. Please make sure that the under testing image has been located in [tftp] server directory. Open [tftp] software.

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![](_page_41_Picture_0.jpeg)

	and the second second			
► IAC-A5D3x-Kit ► linux ► Too	ol Software 🕨	▼ 🍫 搜索 Tool	Software	P
				?
名称	修改日期	类型	大小	
퉬 Serial Debugging Assistant2.1	2015/4/22 15:52	文件夹		
🔚 dhcpsrv1.5	2010/7/14 14:15	WinRAR 压缩文件	18 KB	
🔚 MiniComm	2008/7/19 17:06	WinRAR 压缩文件	19 KB	
🔚 sam-ba_2.12	2012/11/2 16:24	WinRAR 压缩文件	6,252 KB	
SecureCRT.v6.7.1	2015/4/22 16:00	WinRAR 压缩文件	26,885 KB	
🔚 Serial Debugging Assistant2.1	2015/4/22 16:01	WinRAR 压缩文件	138 KB	
🗎 Source Insight	2015/4/22 16:21	WinRAR 压缩文件	3,130 KB	
🏘 tftpd32	2006/12/20 9:47	应用程序	56 KB	
EXP Version Hyper Terminal	2015/4/22 15:51	WinRAR 压缩文件	153 KB	

Make sure that the development board has been connected to the network. And it could telecommunicate with the PC. You could connect the development board to PC directory, or you could connect the development board to the router where is the PC local area network. Support the LAN 1 (J7) in uboot.

Serial Setting: Open terminal telecommunication in Windows( Mini terminal or Hyper terminal). Select the serial and set parameter as follows:

Baud Rate:[115200], Data Bit:[8] bit, Stop Bit:[1]bit, Check Bit:[None], Data flow Control: [None].

# 4.2. Enter Into U-boot Operation Interface

Power on, press button when it is in the debugging terminal interface. Then enter into [uboot] interface.

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![](_page_42_Picture_0.jpeg)

ROMBOOT

AT91Bootstrap 3.5.4 Qiyang (Thu Dec 19 18:43:48 CST 2013) SF: Got Manufacturer and Device ID:0x1f 0x26 0x0 0x0 0x0 SF: Copy 0x80000 bytes from 0x8400 to 0x26f00000 SF: Done to load image U-Boot 2012.10 Qiyang (Dec 19 2013 - 18:49:58) CPU: SAMA5D34 Crystal frequency: 12 MHz CPU clock 528 MHz Master clock DRAM: 256 MiB NAND: 256 MiB 132 MHz 5 MMC: mci: O SF: Detected AT45DB161D with page size 528 Bytes, total 2.1 MiB In: serial serial serial out: Err: Net: gmacb0 Hit any key to stop autoboot: 0 U-Boot> U-Boot>

# 4.3. Set Network Parameter

In [uboot] environment, the default IP is [192.168.1.126], Server IP (PC where is the under burning image) is [192.168.1.99]. Gateway: [192.168.1.1], Sub Net Mask: [255.255.255.0].

Here, if you need, you could modify according to the following instruction:

U-Boot> set serverip 192.168.1.81 U-Boot> set ipaddr 192.168.1.179 U-Boot> set gatewayip 192.168.1.1 U-Boot> set netmask 255.255.0.0 /\* Set PC server IP\*/ /\* Set Mainboard IP\*/ /\* Set Gateway \*/ /\* Set Sub Net Mask\*/

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![](_page_43_Picture_0.jpeg)

AT91Bootstrap 3.5.4 QiYang (wed Jan 8 12:36:06 CST 2014) SF: Got Manufacturer and Device ID:0x1f 0x26 0x0 0x0 0x0 SF: Copy 0x80000 bytes from 0x8400 to 0x26f00000 SF: Done to load image U-Boot 2012.10 QiYang (Jan 08 2014 - 11:39:56) CPU: SAMA5D34 Crystal frequency: 12 MHz CPU clock : 528 MHz DRAM: 256 MiB NAND: 256 MiB MMC: mci: 0 SF: Detected AT45DB161D with page size 528 Bytes, total 2.1 MiB In: serial CU: serial Err: serial Err: serial Err: serial Het: gmacb0 Hit any key to stop autoboot: 0 U-Boot> U-Boot> set serverip 192.168.1.81 U-Boot> set serverip 192.168.1.179 U-Boot> set gatewayip 192.168.1.1 U-Boot> set netmask 255.255.0.0

After configuration, you could use the following command to check whether the [ipaddr] [netmask] [serverip] [gatewayip] is correct:

U-Boot> print

U-Boot> print baudrate=115200 bootargs=console=ttys0,115200 earlyprintk mtdparts=atmel\_nand:1536k(spare)ro,512 k(dtb),6M(kernel)ro,-(rootfs) rootfstype=ubifs ubi.mtd=3 root=ubi0:rootfs bootcmd=nand read 0x21000000 0x180000 0x80000;nand read 0x22000000 0x200000 0x60 0000; bootm 0x22000000 - 0x21000000 bootdelay=1 dd=tftp 0x22000000 sama5d34ek.dtb; nand erase 0x180000 0x80000; nand write 0x220 00000 0x180000 \$filesize df=tftp 0x22000000 rootfs.ubi; nand erase 0x800000 \$nand\_fs\_size; nand write.tri dk=tftp 0x22000000 uImage; nand erase 0x200000 0x600000; nand write 0x22000000 2 00000 \$filesize du=tftp 0x22000000 u-boot.bin;sf probe 0;sf erase 0x4200 0x8c400;sf write 0x2200 0000 0x8400 \$filesize; eth1addr=12:34:56:78:90:01 ethact=gmacb0 ethaddr=12:34:56:78:90:00 gatewayip=192.168.1.1 ipaddr=192.168.1.179 nand\_fs\_size=f800000 netmask=255.255.0.0 serverip=192.168.1.81 up=run dd;run dk;run df Environment size: 948/16892 bytes U-Boot>

You could use the following command to store the modified parameters into the stadium. If you do not execute the instruction, the above configuration should take effect in the current circumstance. After rebooting, it will come back to the default status.

U-Boot> saveenv

U-Boot> saveenv Saving Environment to SPI Flash... SF: Detected AT45DB161D with page size 528 Bytes, total 2.1 MiB Erasing SPI flash...Writing to SPI flash...done U-Boot>

Finish the above configuration, it could be by the following instructions to test the current

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![](_page_44_Picture_0.jpeg)

board and the network on PC, whether the connection is ok.

U-Boot> ping 192.168.1.81

If the network is connected well, and the configuration is correct. Then it shows the mainfram's [alive].

U-Boot> ping 192.168.1.99 gmacb0: PHY present at 31 gmacb0: Starting autonegotiation... gmacb0: Autonegotiation complete gmacb0: link up, 100Mbps full-duplex (lpa: 0x45e1) Using gmacb0 device host 192.168.1.99 is alive U-Boot>

If the network connection is abnormal, or the configuration is not correct. It will show the

mainframe [not alive], as shown:

```
The target server IP is error:

U-Boot> ping 192.168.1.100

gmacb0: PHY present at 31

gmacb0: link up, 100Mbps full-duplex (lpa: 0x45e1)

Using gmacb0 device

ping failed; host 192.168.1.100 is not alive

U-Boot>
```

Network cable or Network chip is not working.

```
U-Boot> ping 192.168.1.99
gmacb0: PHY present at 31
gmacb0: Starting autonegotiation...
gmacb0: Autonegotiation timed out (status=0x7849)
gmacb0: link down (status: 0x7849)
ping failed; host 192.168.1.99 is not alive
U-Boot>
```

#### 4.4. Update Image

After configuration, start to update image. [Uboot] has generated all commands to update

these images[u-boot.bin], [uImage], [sama5d34ek.dtb], [rootfs.ubi], there are :[du],[dk],[dd],[df].

u-boot	>	run du
uImage	>	run dk
sama5d34	ek.dtb	->run dd
Rootfs.ubi	>	run df

Execute the following commands to update [u-boot.bin]:

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![](_page_45_Picture_0.jpeg)

Execute the following commands to update [sama5d34ek.dtb]:

U-Boot> run dd gmacb0: PHY present at 31 gmacb0: link up, 100Mbps full-duplex (lpa: 0x45e1) Using gmacb0 device TFTP from server 192.168.1.99; our IP address is 192.168.1.126 Filename 'sama5d34ek.dtb'. Load address: 0x22000000 Loading: ##### done Bytes transferred = 22082 (5642 hex) NAND erase: device 0 offset 0x180000, size 0x80000 Erasing at 0x1e0000 -- 100% complete. OK NAND write: device 0 offset 0x180000, size 0x5642 22082 bytes written: OK U-Boot>

Execute the following commands to update [uImage]:

U-Boot> run dk \*\*\*\*\*\*\*\*\* \*\*\*\*\* \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* \*\*\*\*\*\*\*\*\*\*\*\*\* \*\*\*\*\*\*\*\*\* \*\*\*\*\*\*\*\*\*\* done Bytes transferred = 2643704 (2856f8 hex) NAND erase: device 0 offset 0x200000, size 0x600000 Erasing at 0x7e0000 -- 100% complete. OK. NAND write: device 0 offset 0x200000, size 0x2856f8 2643704 bytes written: OK U-Boot>

Execute the following commands to update [rootfs.ubi]:

#### U-Boot> run df

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![](_page_46_Picture_0.jpeg)

Int

gmacb0: PHY present at 31

gmacb0: link up, 100Mbps full-duplex (lpa: 0x45e1)

Using gmacb0 device

TFTP from server 192.168.1.99; our IP address is 192.168.1.126

Filename 'rootfs.ubi'.

Load address: 0x22000000

Loading:

. . .

done

Bytes transferred = 44826624 (2ac0000 hex)

NAND erase: device 0 offset 0x800000, size 0xf800000

Erasing at 0xffe0000 -- 100% complete.

OK

NAND write: device 0 offset 0x800000, size 0x2ac0000

44826624 bytes written: OK

Finish, then reboot mainboard.

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![](_page_47_Picture_0.jpeg)

4.5. Enter into system

UBIFS DBG (pid UBIFS DBG (pid UBIFS DBG (pid UBIFS DBG (pid 1): mount\_ubifs: dead watermark: 1): mount\_ubifs: dark watermark: 1): mount\_ubifs: LEB overhead: 1): mount\_ubifs: max. dark space 2048 6144 2656 11089920 (10830 KiB, 10 MiB mount\_ubifs: max. dark space: (pid 1): mount\_ubifs: maximum bud bytes: 8388608 (8192 KiB, 8 Mi (pid 1): mount\_ubifs: BG commit bud bytes: 6815744 (6656 KiB, 6 Mi (pid 1): mount\_ubifs: current bud bytes 182272 (178 KiB, 0 MiB) (pid 1): mount\_ubifs: max. seq. number: 35533 (pid 1): mount\_ubifs: commit number: 9 red root (ubifs filesystem) readonly on device 0:11. (pid UBIFS DBG UBIFS DBG MiB) UBIFS DBG UBIFS DBG UBIFS DBG 5: Mounted root devtmpfs: mounted Freeing init memory: 156K UBIFS: completing deferred recovery UBIFS DBG (pid 545): ubifs\_bg\_thread: background thread "ubifs\_bgt0\_0" started, PID 545 PID 545 UBIFS: deferred recovery completed Starting logging: OK Starting user init: OK Populating /dev using udev: IPv6: ADDRCONF(NETDEV\_UP): eth0: link is not ready udevd[568]: starting version 182 at91\_can f000c000.can: can0: writing AT91\_BR: 0x00200561 done Starting portmap: done Initializing random number generator... done. Starting network... Starting vsftpd: OK Starting telnetd: OK welcome to IAC-A5D3x-V2.x
sama5d3x login: macb f0028000.ethernet: eth0: link up (100/Full)
IPv6: ADDRCONF(NETDEV\_CHANGE): eth0: link becomes ready
IPv6: eth0: IPv6 duplicate address fe80::1034:56ff:fe78:9076 detected! welcome to IAC-A5D3x-V2.x sama5d3x login: root [root@sama5d3x /root]# 

Input[root], enter into file system.

V.FAQ

### 5.1. Check errors when the image is burnt by USB

PC could not recognize the development board.

- a, Whether the [Samba]driver is installed well.
- b, Whether the USB port on PC is working well.
- c、 Whether the USB cable is connected well.
- d, Whether the J1 jumper cap is disconnected on core board.
- e. Whether there is any printed information in debug serial port terminal.

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![](_page_48_Picture_0.jpeg)

- f、 Whether the serial cable is connected well.
- g、 Whether the core board is working well.
- $h_{\sim}$  Whether other boot modes have the bootstrap or not, you can erase or disconnect , then reconnect.
- 1, SAMBA is in suspended animation in burning process.
  - a、 USB port is not connected well.
  - b、 After rebooting PC, burn the image again.

# 5.2. Check errors when the image is burnt by SD card

Failed by SD card when in burning image.

- a、Whether the SD card has be created well as per Chapter 1.2.2
- b. Whether the under burning image and tool are copied to the card well or not.
- c、 Use jumper cap to connect, confirm [dataflash] is no bootstrap.
- d、 Disconnect jumper cap, recognize SD card. Connect again when burning dataflash.
- e、 Use another SD card to burn.

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![](_page_49_Picture_0.jpeg)

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