

Atmel SAM3X BeRTOS Project

This is a page about Atmel's SAM3X Development Board.

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Available:

ATSAM3X-EK-ND at Digi-Key
AT91SAM7X-EK-ND at Digi-Key

Basic Requirements:

- ARM Cross Compiler
 - Linaro: <http://www.linaro.org/downloads/1207>
- Real Time Operating System
 - BeRTOS – real time open source operating system <http://www.bertos.org/>
- Atmel SAM-BA
 - Atmel SAM-BA In-system Programmer <http://www.atmel.com/tools/ATMELSAM-BAIN-SYSTEMPROGRAMMER.aspx>

Download and Setup GCC ARM Cross Compiler:

```
cd ${HOME}/  
wget  
https://launchpad.net/gcc-arm-embedded/4.6/4.6-2012-q2-update/+download/gc  
c-arm-none-eabi-4_6-2012q2-20120614.tar.bz2  
tar xjf gcc-arm-none-eabi-4_6-2012q2-20120614.tar.bz2
```

Download BeRTOS Source Code:

```
git clone git://src.develer.com/bertos.git  
cd bertos  
git checkout origin/master -b atmel_tmp  
wget  
https://raw.githubusercontent.com/RobertCNelson/eewiki/master/BeRTOS/SAM3X/0001-use-C  
ROSS_COMPILE-with-two-sample-projects-sam3x-sam.patch  
patch -p1 < 0001-use-CROSS_COMPILE-with-two-sample-projects-sam3x-sam.patch
```

Building SAM7X http Demo:

Build:

```
make CROSS_COMPILE=${HOME}/gcc-arm-none-eabi-4_6-2012q2/bin/arm-none-eabi-  
clean  
make CROSS_COMPILE=${HOME}/gcc-arm-none-eabi-4_6-2012q2/bin/arm-none-eabi-  
-f Makefile_sam7x  
mkdir ../sam7x  
cp -v images/* ../sam7x/
```

Building SAM3X http Demo:

```
make CROSS_COMPILE=${HOME}/gcc-arm-none-eabi-4_6-2012q2/bin/arm-none-eabi-  
clean  
make CROSS_COMPILE=${HOME}/gcc-arm-none-eabi-4_6-2012q2/bin/arm-none-eabi-  
-f Makefile_sam3x  
mkdir ../sam3x  
cp -v images/* ../sam3x/
```

Atmel's SAM-BA System Programmer

For this example we are using version 2.12 for linux found : <http://www.atmel.com/tools/ATMELSAM-BAIN-SYSTEMPROGRAMMER.aspx>

SAM3X

Programming:

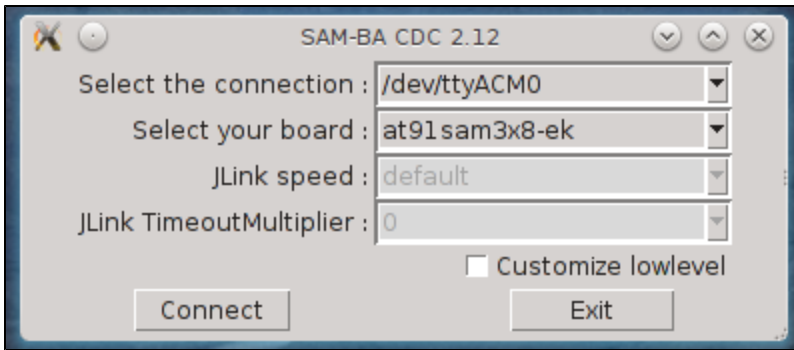
With the Board un-powered:

1. connect a Micro USB (J3) to the SAM3X development kit.
2. Jumper the Erase Jumper (JP6)
3. in linux: lsusb

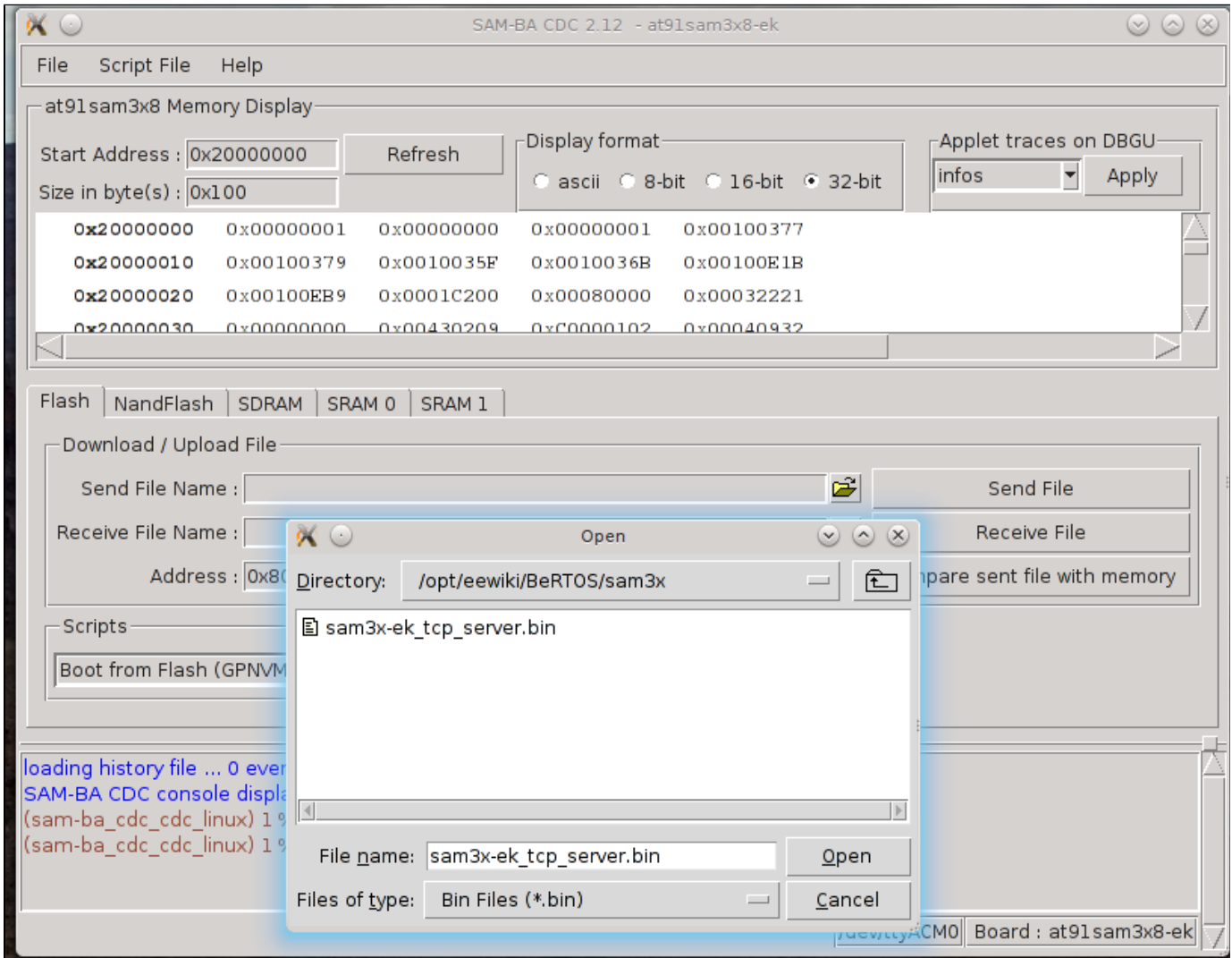
```
Bus 001 Device 006: ID 03eb:6124 Atmel Corp. at91sam SAMBA bootloader
```

4. Un-Power the board
5. Remove Erase Jumper (JP6)
6. Power Board

Run SAM-BA



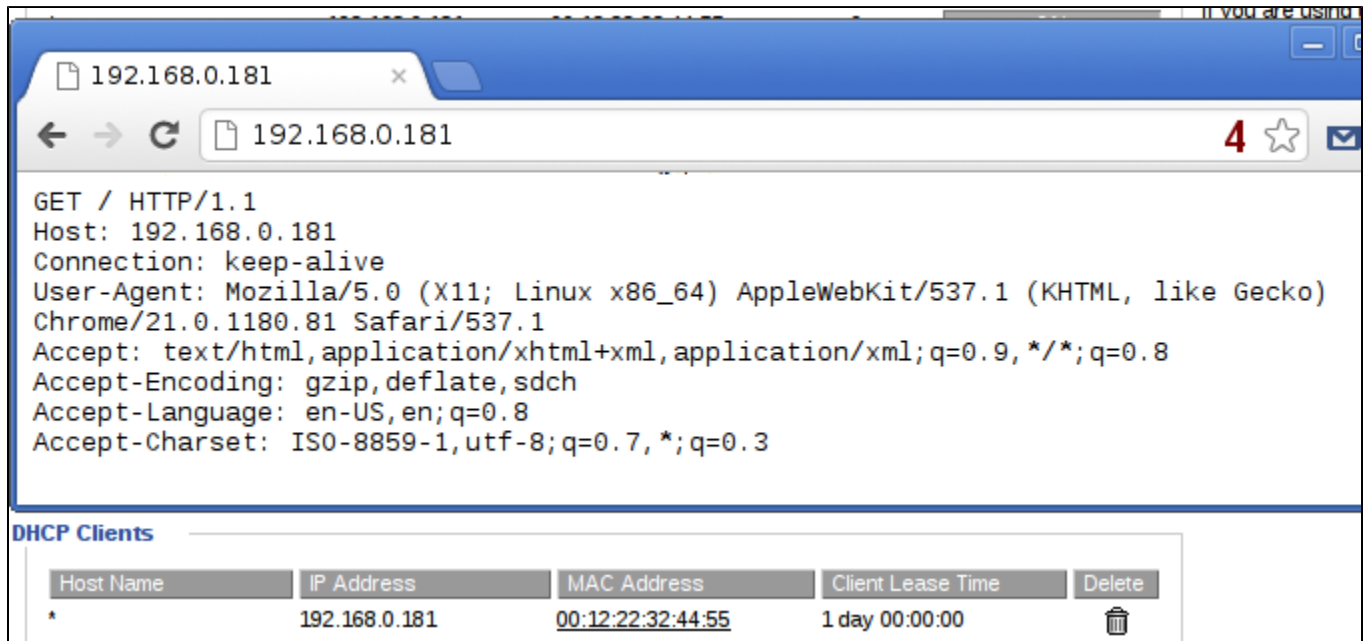
```
-I- Waiting ...
-I- TCL platform : Linux
-I- SAM-BA CDC 2.12 on : linux
```



#Click Small Icon next to Send File

1. Select: sam3x-ek_tcp_server.bin
2. Click Open:
3. Click Send File:
4. Protection: No


HTTP Server:



The screenshot shows a web browser window with the address bar set to 192.168.0.181. The main content area displays the raw HTTP request for a GET operation. Below the request, there is a section titled "DHCP Clients" containing a table with one entry.

```
GET / HTTP/1.1
Host: 192.168.0.181
Connection: keep-alive
User-Agent: Mozilla/5.0 (X11; Linux x86_64) AppleWebKit/537.1 (KHTML, like Gecko)
Chrome/21.0.1180.81 Safari/537.1
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Encoding: gzip, deflate, sdch
Accept-Language: en-US,en;q=0.8
Accept-Charset: ISO-8859-1,utf-8;q=0.7,*;q=0.3
```

DHCP Clients

Host Name	IP Address	MAC Address	Client Lease Time	Delete
*	192.168.0.181	<u>00:12:22:32:44:55</u>	1 day 00:00:00	

Comparison: (VDDCORE)

SAM3X: 0.98mA @ xMhz