



ConnectCore™ 9U (UNC90)  
U-Boot Recovery Guide  
with Digi JTAG-Link, Segger J-Flash ARM

## Document History

| Date       | Version | Change Description    |
|------------|---------|-----------------------|
| 2010/09/02 | V1.0    | Initial entry/outline |
|            |         |                       |
|            |         |                       |

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## 1 Problem Description

- U-Boot does no output on the serial port, or it is otherwise inoperable. Before proceeding try the following:
- You might be using the wrong serial port. Try all of them.
- Wrong baud rate on the serial terminal. By default U-Boot is at 38400, 8, n, 1, n. U-Boot on your board might boot with different baud rate. Try all the baud rates between 4800 and 115200.
- U-Boot environment/EEPROM could have bad settings. The variable ‘silent’ could be set to ‘yes’ or ‘baudrate’ is invalid, bootdelay is 0, or bootcmd leads into an immediate crash you cannot recover from. To fix this you will need to clear environment and set it to the defaults. This can be recovered by following this guide.
- The U-Boot partition in flash might have a bad block. This is irrecoverable and the device will need to be replaced.
- The U-Boot partition was overwritten or erased by accident with non-working code, or a power outage during a flash erase or write operation. This can be recovered by following this guide.

## 2 Requirements

The recovery in this document requires:

- ConnectCore 9U (UNC90) module with available serial port on board, and a J-TAG connector on the board (e.g. Digi FS-358 UNCBAS\_3 board).
- DG-ACC-JLTK Digi JTAG Link USB 2.0 Debugger (also known as Segger J-Link ARM)
  - <http://www.digi.com/products/model.jsp?lid=EN&pgid=41&pfid=37&mtid=2077&amtid=2433>
  - <http://www.segger.com/cms/jlink-software.html>
  - Segger License for Flash programming:  
<http://www.segger.com/cms/jflash.html>
- Desktop PC with USB 2.0 host connector and Windows to install J-Link/Flash USB driver and J-Flash software. Software can be downloaded and installed without license, but licensed features cannot be used.

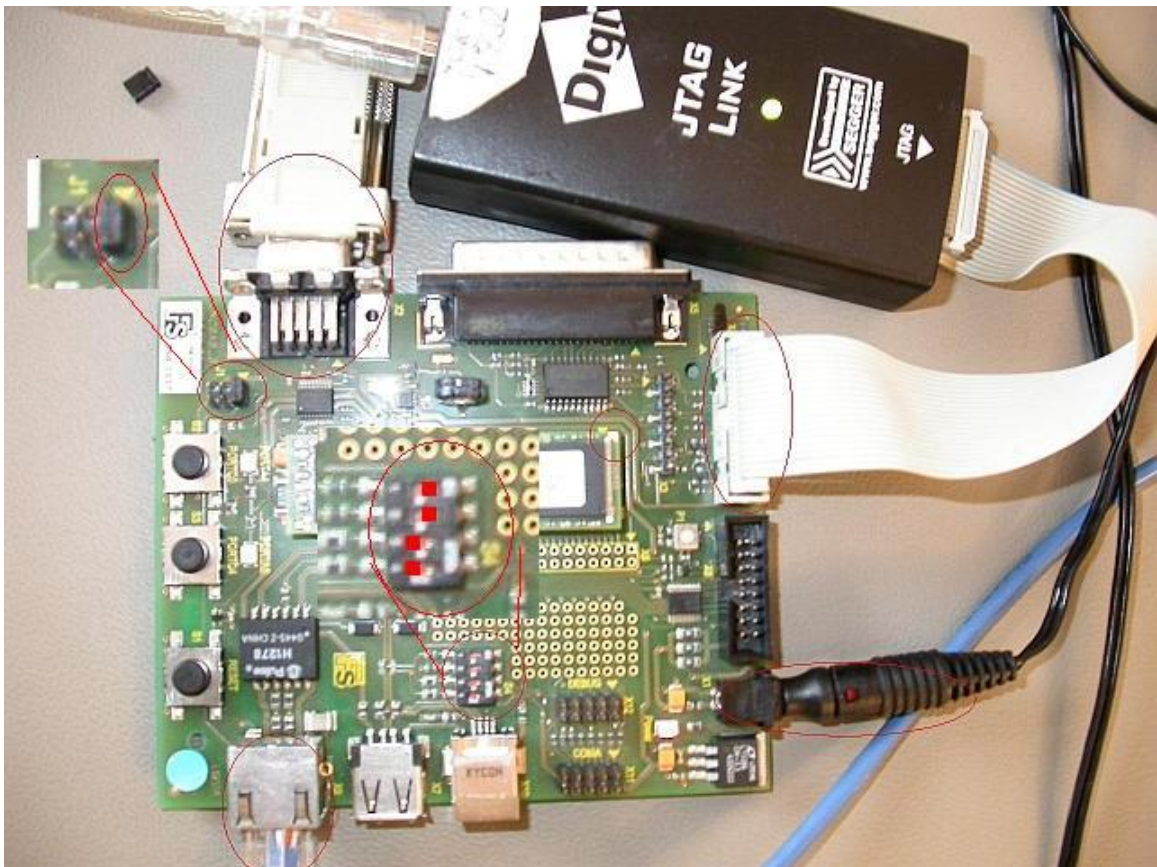
### 3 Software Setup

- Install the JTAG-Link USB 2.0 drivers and JTAG-Commander JLINK.exe on a MS-Windows PC from [http://www.segger.com/download\\_jlink.html](http://www.segger.com/download_jlink.html).
- These instructions were tested with V4.10b. Installation should work out of the box, it is explained here: [http://www.segger.com/jlink\\_arm\\_support.html](http://www.segger.com/jlink_arm_support.html)
- Decompress the U-Boot and firmware images available enclosed in the zip file into any directory, e.g. Desktop\CC9U\.
- The files from the zip should be:
  - u-boot-unc90dev-defaultenv.bin, special build not using environment from EEPROM
  - u-boot-unc90dev.bin version released by Digi for CC9U compatible with old SPANSION S29GL128P flash AND with new NUMONYX M29W128GH flash. If not included, see: [http://ftp1.digi.com/support/patches/CC9U\\_UBOOT114\\_BIN\\_82002254\\_A.zip](http://ftp1.digi.com/support/patches/CC9U_UBOOT114_BIN_82002254_A.zip)

## 4 Hardware Setup

- Connect the J-TAG adapter to the MULTI-ICE connector X4/JTAG on the development board.
- Connect the J-TAG adapter to your PC via the supplied USB cable.
- Set Jumper J1 pin 1-2 (to activate JTAG)
- Plug the CC9U module to recover in the socket with pin 1 toward the JTAG-connector.
- Connect a serial null modem cable (pins 2 and 3 crossed) to your host computer and launch a terminal program (e.g. HyperTerminal) with 38400 8N1. Plug the cable into Serial Port at X2 of the Digi development board.
- Connect the power cable/power on the board.

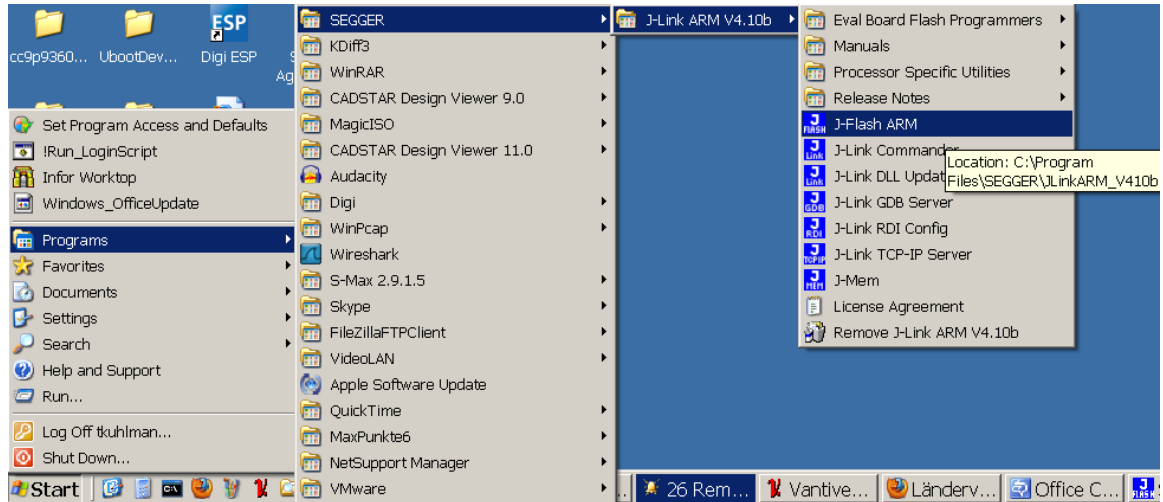
Check: if there is serial output from U-Boot with J1 1-2 removed and you get a U-Boot prompt at any baud rate, you're done.



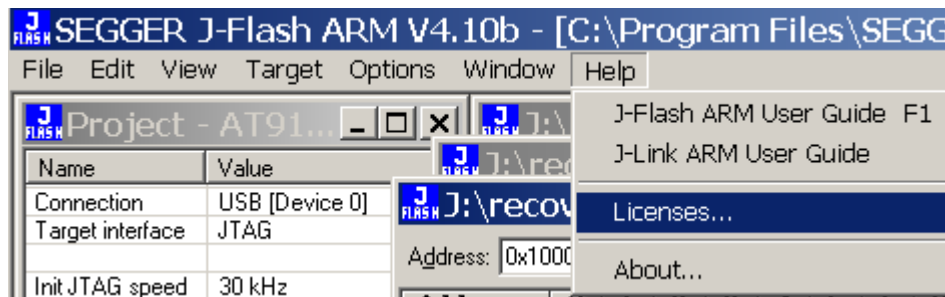
## 5 Recovery Procedure

### 5.1 Program U-Boot using default environment

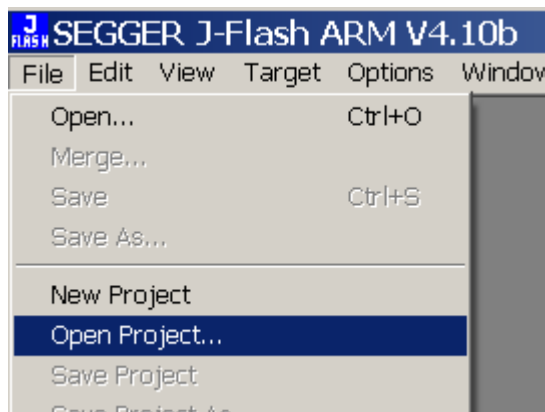
- Launch the Segger J-Flash tool:



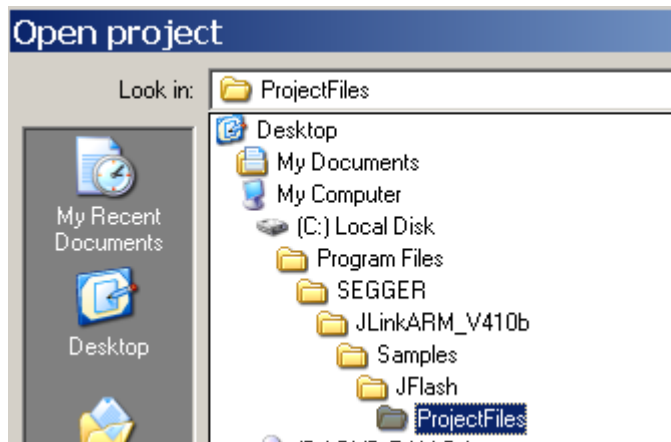
- Enter J-Flash License:



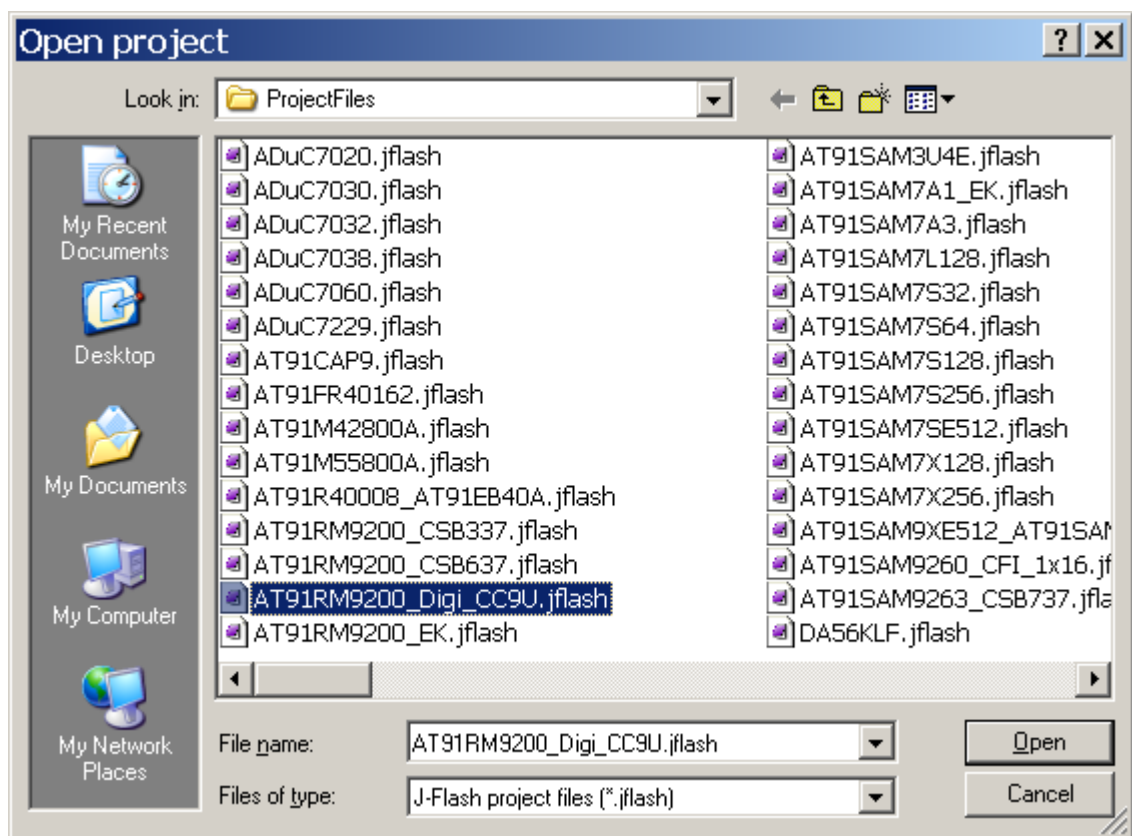
- File -> Open Project:



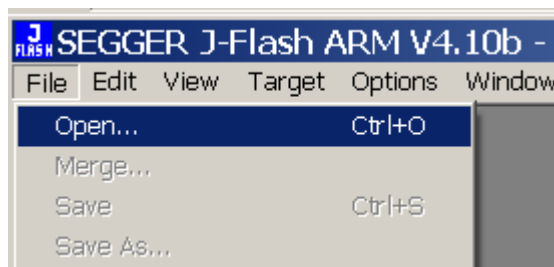
- Select J-Flash Sample Project Files:



- Select AT91RM9200\_Digi\_CC9U.jflash project file:

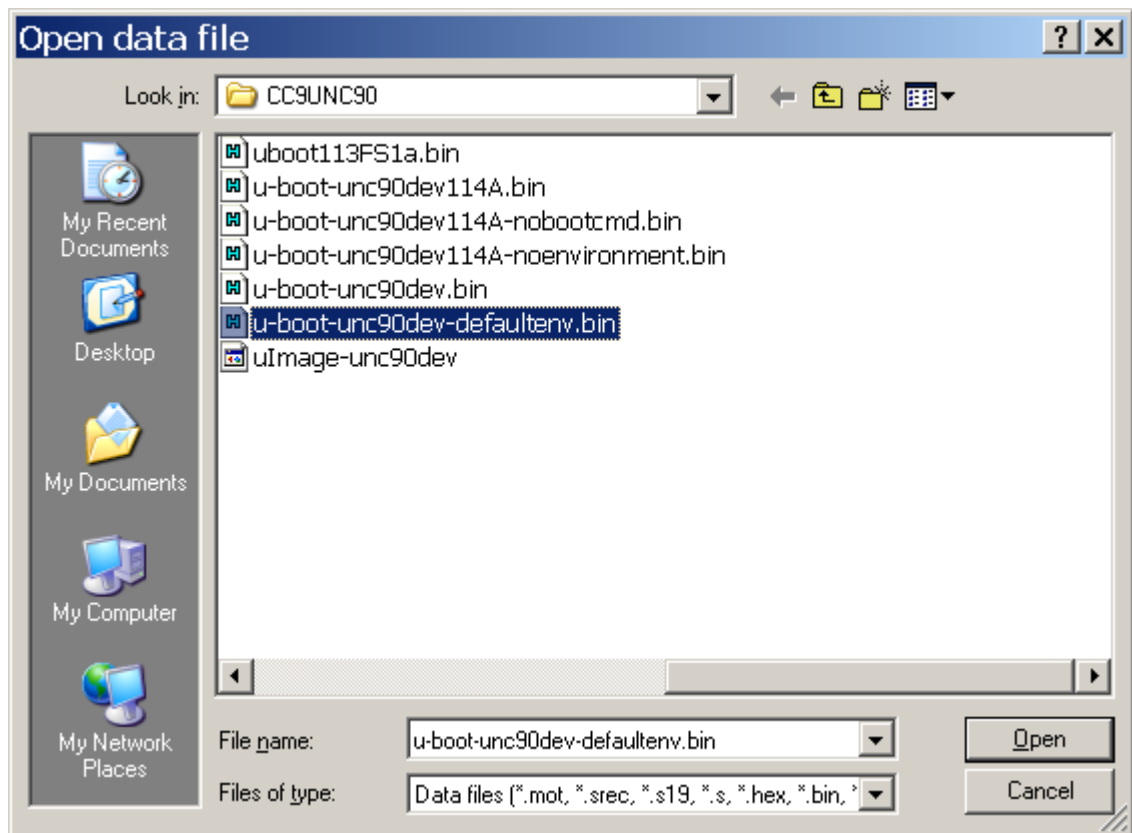


- File -> Open:



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- Select u-boot-unc90dev-defaultenv.bin from the Zip attached

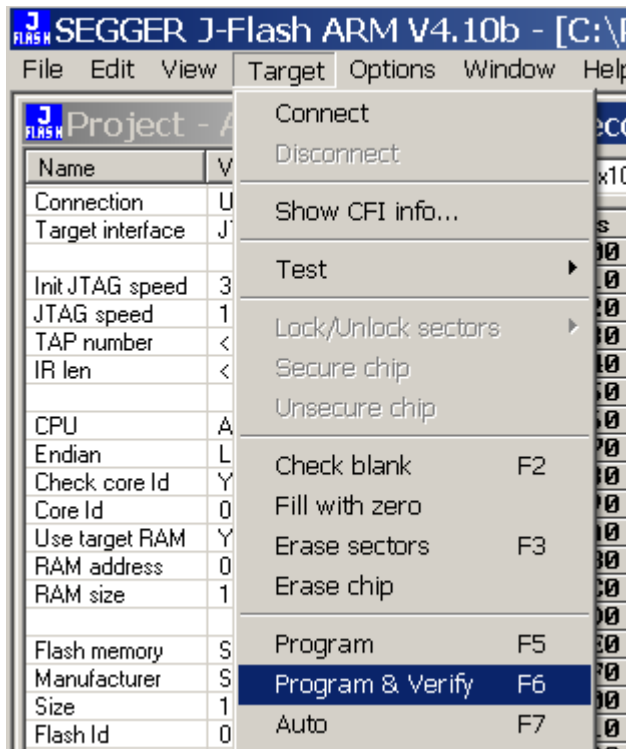


- Enter startaddress (will be corrected automatically later if you leave 0x0):



- Select Target -> Program & Verify

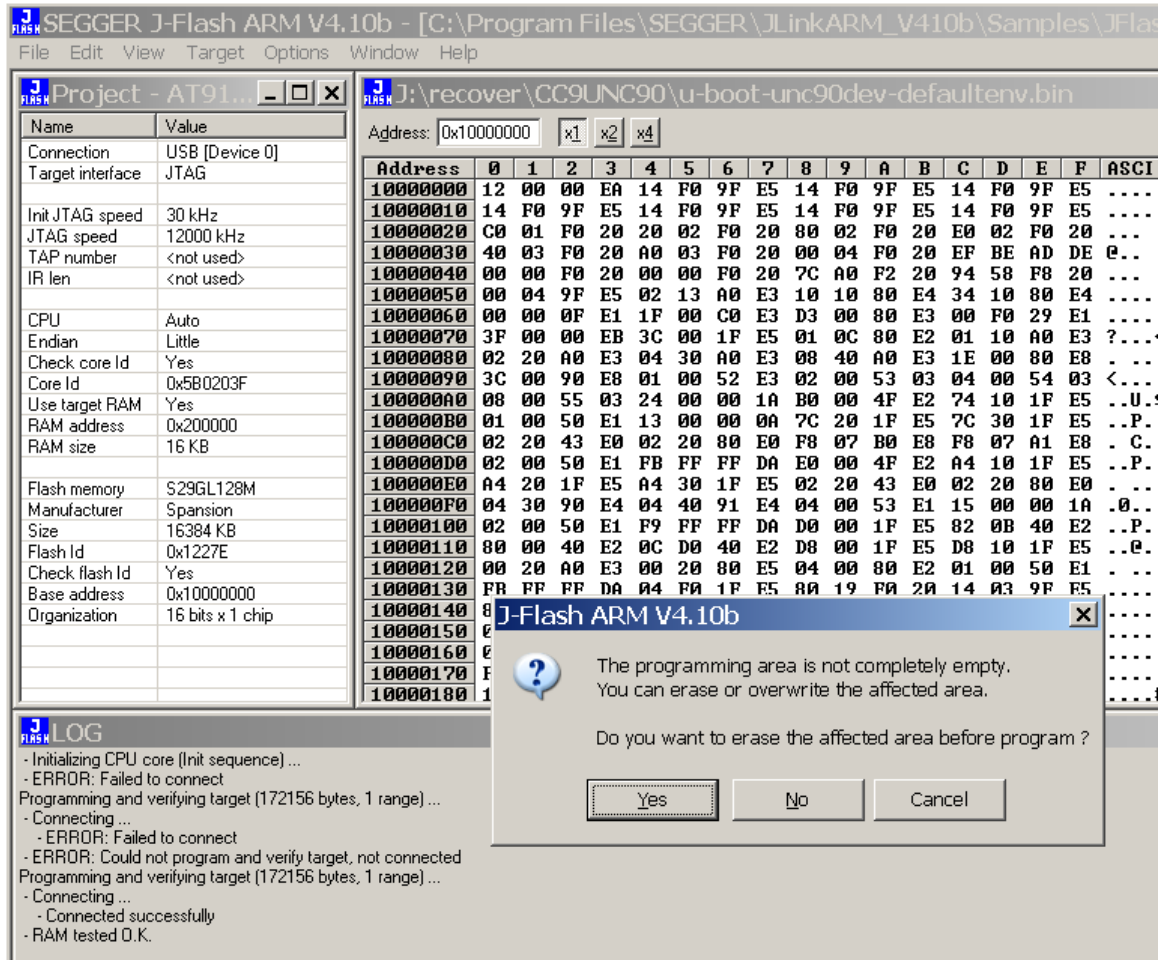
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If you get errors, press the reset button on the board and retry several times.  
Recheck jumper J1 1-2 is set and power cycle.

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- Approve to erase/program flash:



- Remove Jumper J1 and Reset/Power Cycle the board, check serial port for output:

```
U-Boot 1.1.4 (Sep  6 2010 - 18:02:32)
for Digi International CC9U on UNCBAS_3

DRAM:  32 MB
AM29LV128M (16MB)
Flash: 16 MB

In:     serial
Out:    serial
Err:    serial
Hit any key to stop autoboot:  0
CC9U>
```

## 5.2 Clean EEPROM environment and flash memory

### 5.2.1 Clean/Reset EEPROM environment to default

- As the EEPROM could contain environment variables which prevent standard U-Boot to provide serial output, invalidate the EEPROM checksum, to get it reset to default:



```
CC9U> imm 50 500.2
00000500: 20 ? FF
00000501: 73 ? .
CC9U>
```

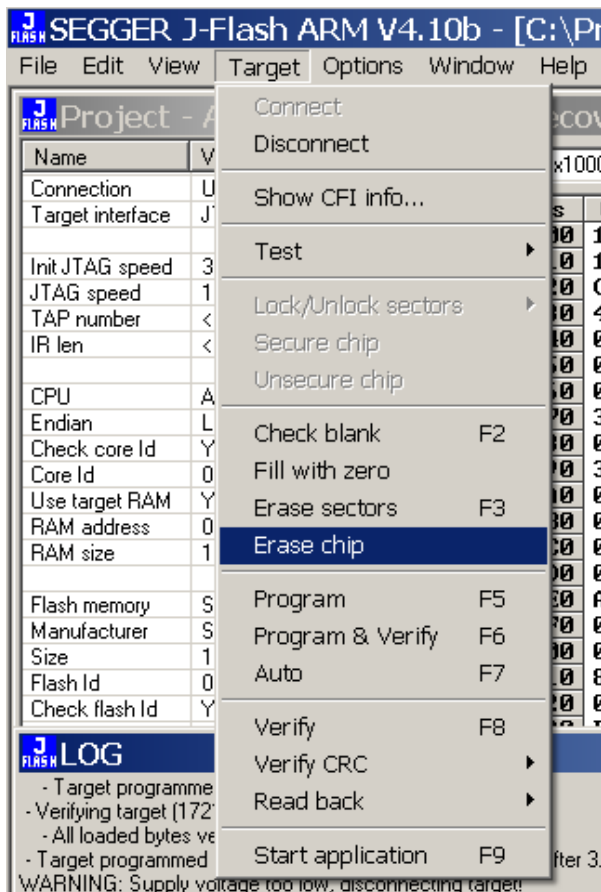
### 5.2.2 Erase flash memory (optional)

- You might want to erase the complete flash, to be sure any partitions are cleared before you later program any file system on them.



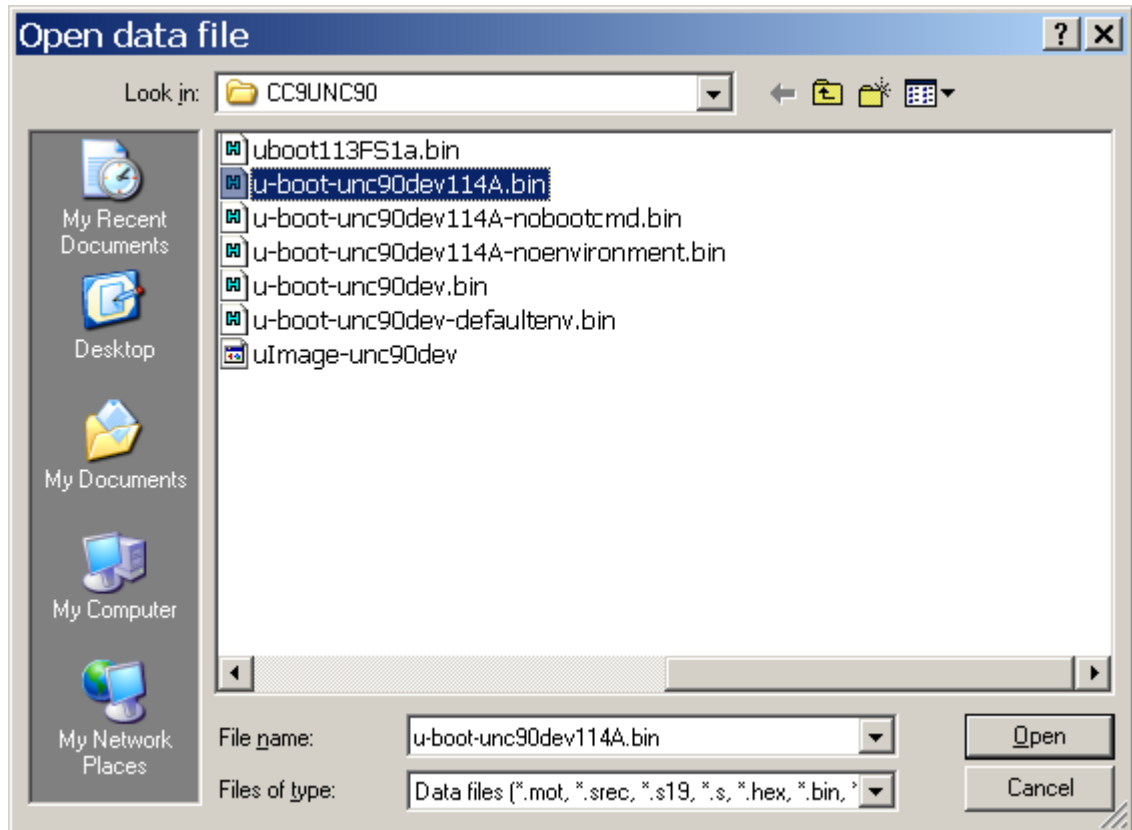
```
CC9U> protect off all
Un-Protect Flash Bank # 1
CC9U> erase all
Erase Flash Bank # 1 ....
CC9U>
```

- You can also do this with the J-Flash “Target->Erase Chip” after reconnecting Jumper J1 1-2:



### 5.3 Program your final U-Boot

- Plug Jumper J1 1-2
- In J-Flash select File->Open and select you final U-Boot binary (e.g. version 1.1.4 RevA from Digi):



- Program this U-Boot into flash with “Target -> Program & Verify” F6 or F7

### 5.4 Programming MAC and default environment into EEPROM

- Remove Jumper J1, and reset/power cycle the board, you should see your final U-Boot booting:

```

U-Boot 1.1.4-CC9U-RevA (Oct 15 2009 - 11:03:07)
for Digi International CC9U on UNCBAS_3

DRAM:  32 MB
AM29LV128M (16MB)
Flash: 16 MB
*** Warning - bad CRC, using default environment

In:     serial
Out:    serial
Err:    serial
Hit any key to stop autoboot:  0
## Booting image at 20100000 ...
Bad Magic Number
CC9U>

```

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- You need to set the MAC Address as printed on the module:



```
CC9U> setenv ethaddr 00:04:F3:xx:yy:zz
CC9U> saveenv
```

### 5.4.1 Customizing network settings (optional)

- Reset the network settings: (Change these to match your desired settings, then copy/paste them into your terminal connection.)



```
# setenv ipaddr 10.4.105.100
# setenv netmask 255.255.0.0
# setenv gatewayip 10.4.1.1
# setenv serverip 10.4.105.1
# saveenv
```