

# FriendlyARM

Downloader Instructions

[www.FriendlyARM.net](http://www.FriendlyARM.net)

|                                 |    |
|---------------------------------|----|
| Introduction.....               | 3  |
| Identify NAND size.....         | 3  |
| Using DNW.....                  | 4  |
| Linux download.....             | 4  |
| WinCE download.....             | 8  |
| Using H-JTAG.....               | 11 |
| Bootloader download to NOR..... | 11 |

## Introduction

Follow the instructions carefully until you become more familiar with downloading programs to your FriendlyARM board and pay special attention to the items highlighted in red.

Also ensure that your board is powered off and is not placed on any conductive surface.

### ***Identify NAND size***

The FriendlyARM boards are available with 64MB and 128MB flash. To identify your board have a look on the Samsung NAND flash chip next to SD socket on the Mini2440 and next to the ARM Microprocessor on the Micro2440.

**K9F1208**      -> 64 MB NAND Flash

**K9F1G08**      -> 128 MB NAND Flash

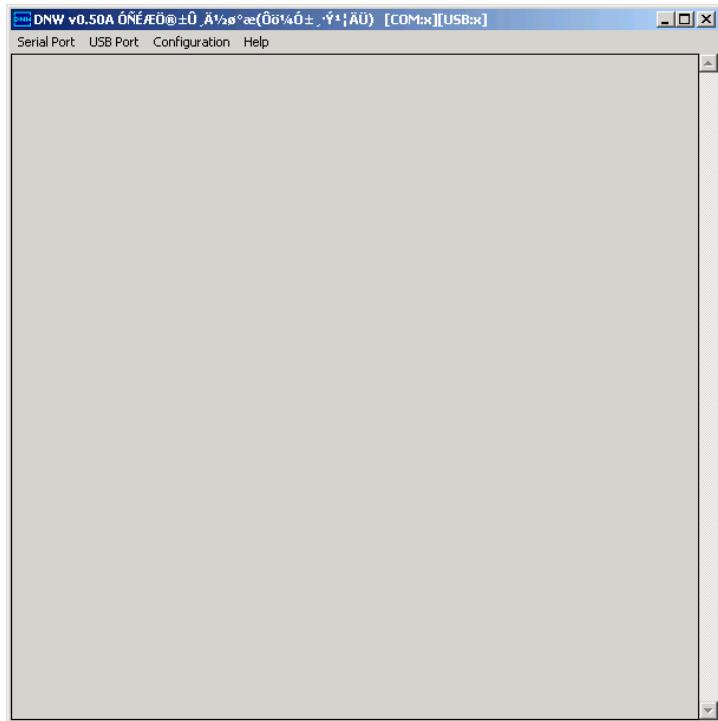
# Using DNW

Requirements: a USB cable, a serial cable (straight - not crossed), DNW and the FriendlyARM USB Download Driver

Install the **USB Download Driver** and connect the board with the **serial cable and the USB cable** to the PC.

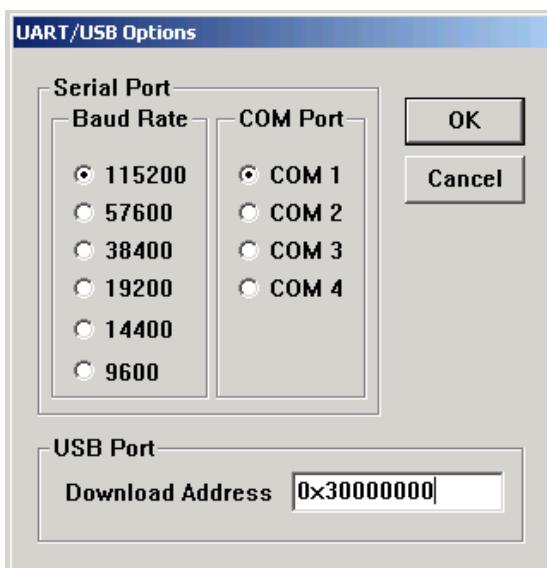
## Linux download

1. Run DNW:

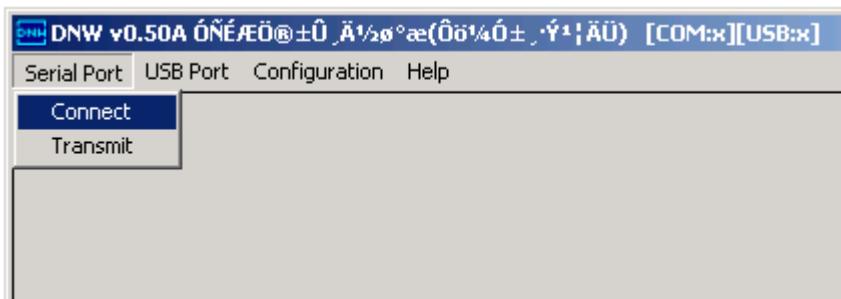


2. Check the settings (**Configuration -> Options**):

Baud Rate: **115200**, Download Address: **0x30000000**



- ### 3. Open the COM-Port:

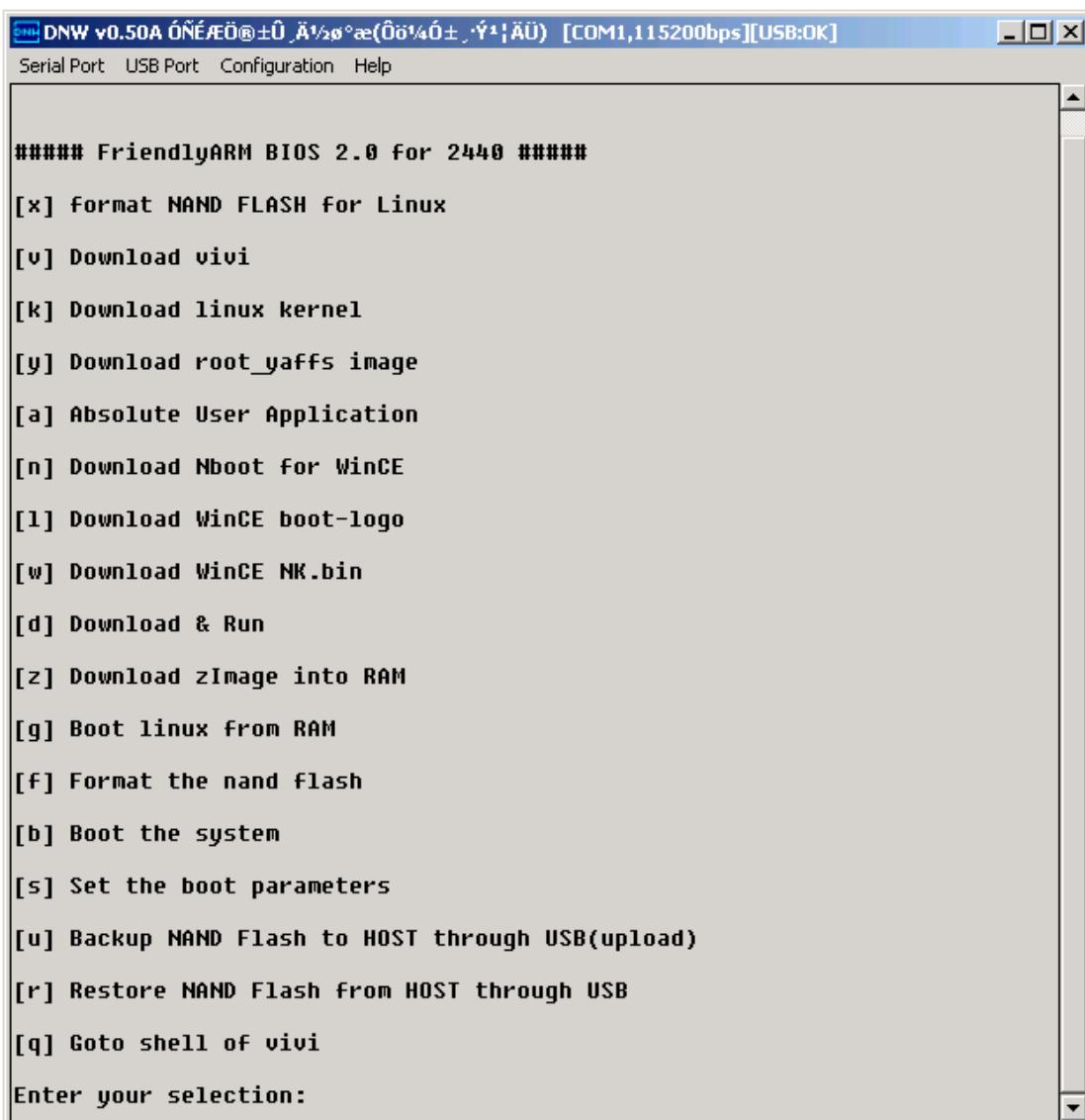


The serial port settings are shown in the DNW-Titlebar when the port is opened successfully: [COM1,115200bps]

4. Set the **boot mode switch (S2)** to **NOR** while the **board** is off.

- ## 5. Power on the board.

The bootloader menu appears and DNW shows the USB connection [USB:OK]:



*In NOR mode the display is off and only the power LED is on.*

6. Press **x** to **format the NAND** flash.

```
Enter your selection: x
Found block size = 0x00020000
Erasing...     ... done
Writing...     ... done
Written 49152 bytes
Saved vivi private data
```

7. Press **v** to download **supervivi** via USB.

```
Enter your selection: v
USB host is connected. Waiting a download.
```

8. Now the bootloader is waiting for data.

Select **USB Port -> Transmit** and choose the file to send to the board:  
**supervivi-64M** for 64MB NAND or **supervivi-128M** for 128MB NAND.

```
Now, Downloading [ADDRESS:30000000h, TOTAL:253922]
RECEIVED FILE SIZE: 253922 (247KB/S, 1S)
Downloaded file at 0x30000000, size = 253912 bytes
Found block size = 0x00040000
Erasing...     ... done
Writing...     ... done
Written 253912 bytes
```

9. Press **k** to download **linux kernel** via USB.

```
Enter your selection: k
USB host is connected. Waiting a download.
```

10. Now the bootloader is waiting for data.

Select **USB Port -> Transmit** and choose the file to send to the board:

**zImage\_A70** for 7“ LCD, **zImage\_N35** for 3,5“ NEC LCD or **zImage\_T35** for 3,5“ Toppoly LCD (all new boards). If the screen has an offset then the wrong kernel is flashed.

```
Now, Downloading [ADDRESS:30000000h, TOTAL:2022354]
RECEIVED FILE SIZE: 2022354 (329KB/S, 6S)
Downloaded file at 0x30000000, size = 2022344 bytes
Found block size = 0x00200000
Erasing...     ... done
Writing...     ... done
Written 2022344 bytes
```

11. Press **y** to download **yaffs root image** via USB.

```
Enter your selection: y  
USB host is connected. Waiting a download.
```

12. Now the bootloader is waiting for data.

Select **USB Port -> Transmit** and choose the file to send to the board:

**root\_qtopia-64M.img** for 64MB NAND or **root\_qtopia-128M.img** for 128MB NAND.

(*The transmitting of the root image can take several minutes.*)

...

|                  |                  |                 |
|------------------|------------------|-----------------|
| 0x07f80000/00999 | 0x05c40000/00003 | 01002/01004=99  |
| 0x07fa0000/01000 | 0x05c40000/00003 | 01003/01004=99  |
| 0x07fc0000/01001 | 0x05c40000/00003 | 01004/01004=100 |

Load yaffs OK:

```
Blocks scanned: 1004, Blocks erased: 1001, Blocks are bad: 3  
RECEIVED and Writed FILE SIZE:58487626 (307KB/S, 186S)
```

13. **Power off** the board and set the **boot mode switch (S2)** to **NAND**.

14. **Power on** the board to start Linux.

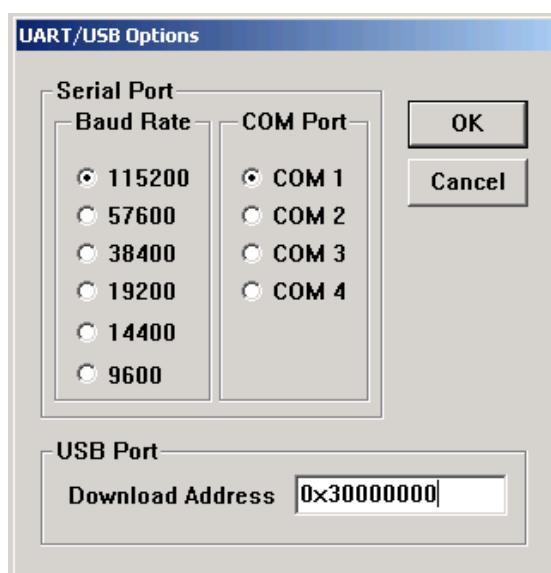
## WinCE download

1. Run DNW for WinCE:

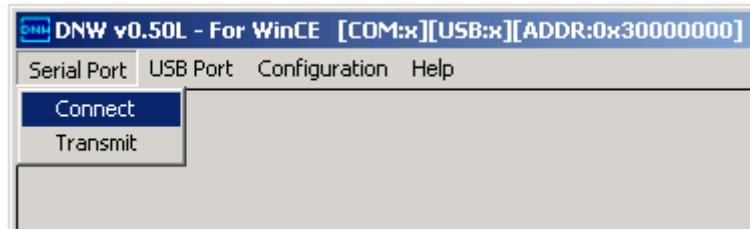


2. Check the settings (**Configuration -> Options**):

Baud Rate: **115200**, Download Address: **0x30000000**



3. Open the COM-Port:

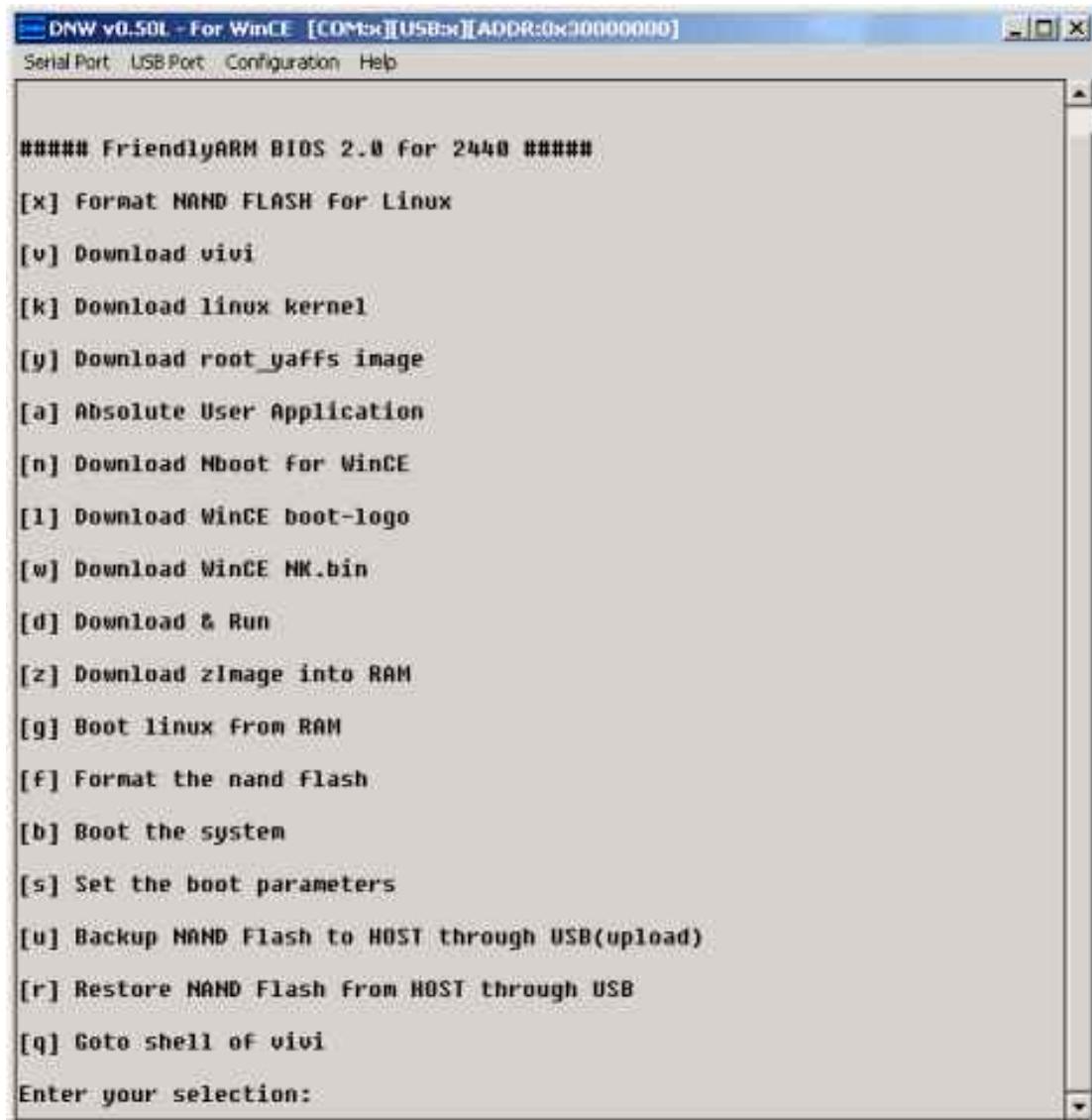


The serial port settings are shown in the DNW-Titlebar when the port is opened successfully: [COM1,115200bps]

4. Set the **boot mode switch (S2)** to **NOR** while the **board is off**.

5. **Power on** the board.

The bootloader menu appears and DNW shows the USB connection [USB:OK]:



*In NOR mode the display is off and only the power LED is on.*

6. Press **f** to **format the NAND** flash.

7. Press **v** to download **supervivi** via USB.

Enter your selection: v

USB host is connected. Waiting a download.

8. Now the bootloader is waiting for data.

Select **USB Port -> Transmit** and choose the file to send to the board:

**supervivi-64M** for 64MB NAND or **supervivi-128M** for 128MB NAND.

9. Press **n** to download **Nboot for WinCE** via USB.

Enter your selection: v

USB host is connected. Waiting a download.

10. Now the bootloader is waiting for data.

Select **USB Port -> Transmit** and choose the file to send to the board:

**nboot\_A70.bin** or **nboot\_N35.bin**

11. Press **I** to download **WinCE boot-logo** via USB.

Enter your selection: l

USB host is connected. Waiting a download.

12. Now the bootloader is waiting for data.

Select **USB Port -> Transmit** and choose the file to send to the board:

**bootlogo.bmp**

13. Press **w** to download **WinCE NK.bin** via USB.

Enter your selection: w

USB host is connected. Waiting a download.

14. Now the bootloader is waiting for data.

Select **USB Port -> Transmit** and choose the file to send to the board:

**nk\_A70.bin** or **nk.N35.bin**

15. **Power off** the board and set the **boot mode switch (S2)** to **NAND**.

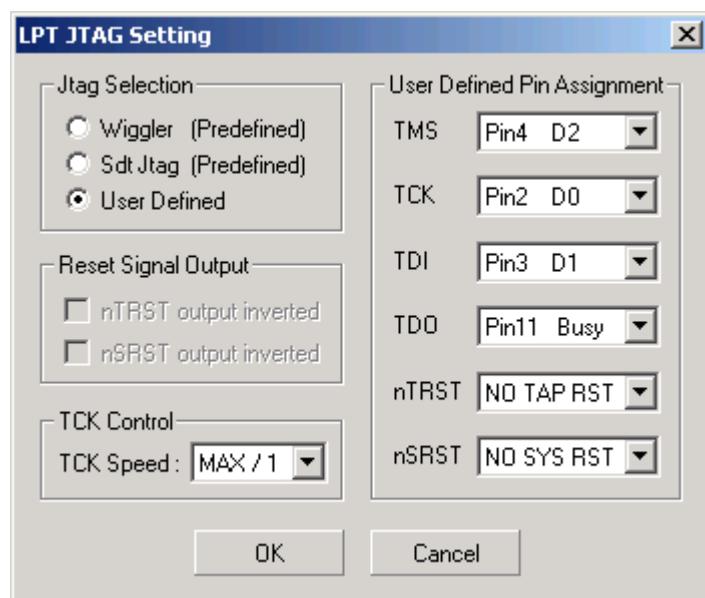
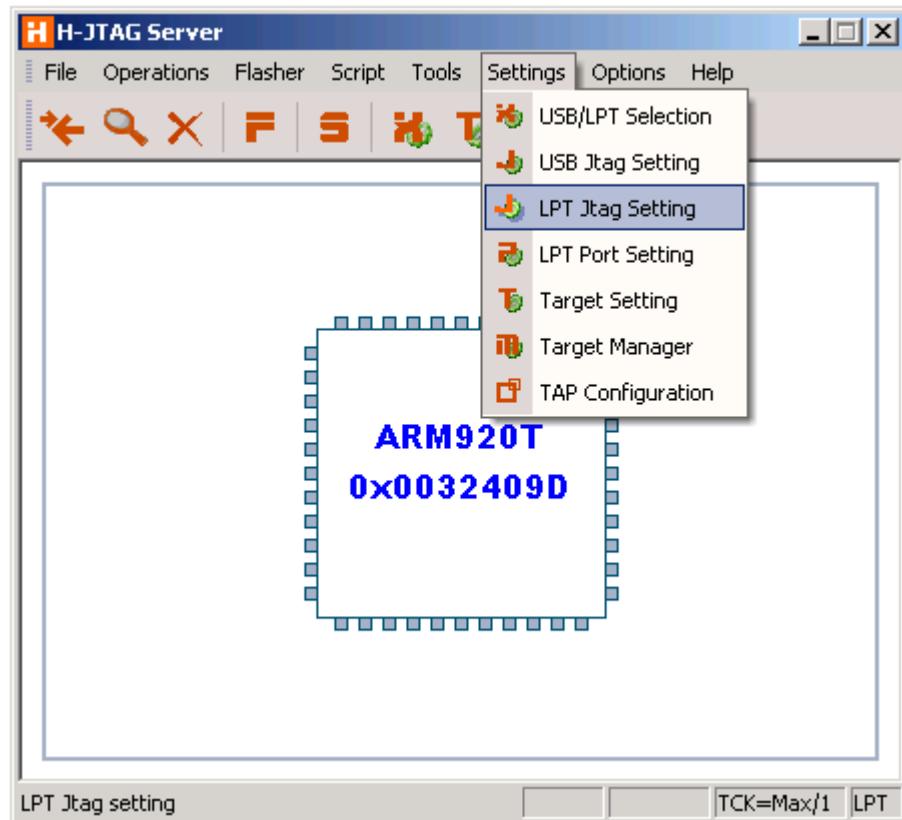
16. **Power on** the board to start WinCE.

# Using H-JTAG

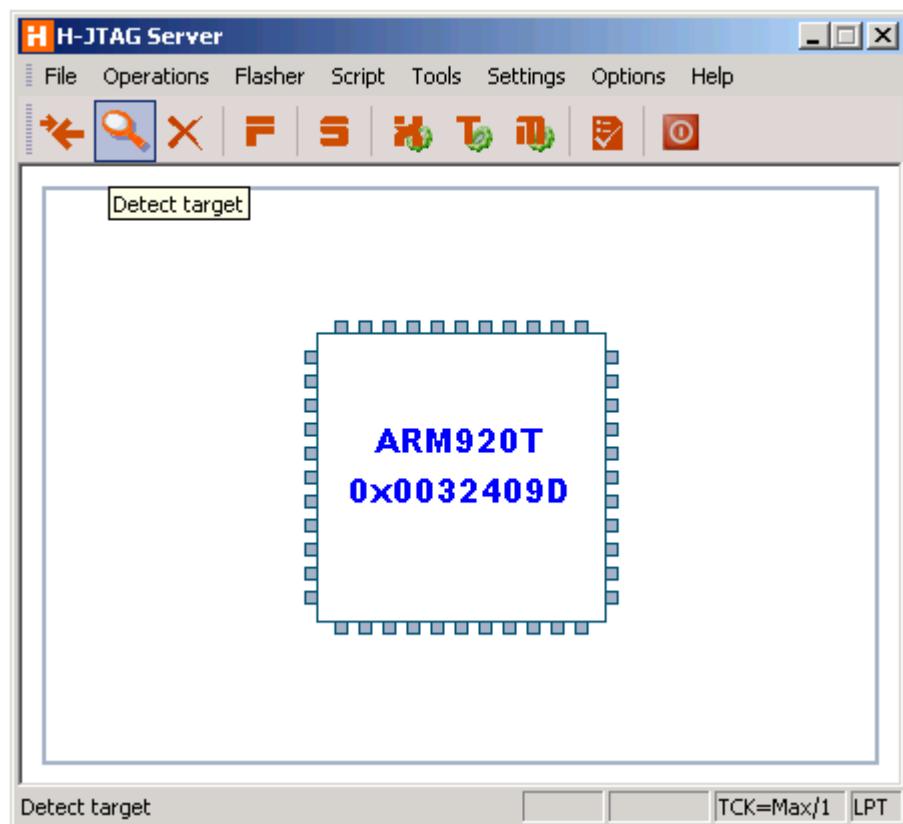
Requirements: FriendlyARM JTAG-Dongle and H-JTAG.

## Bootloader download to NOR

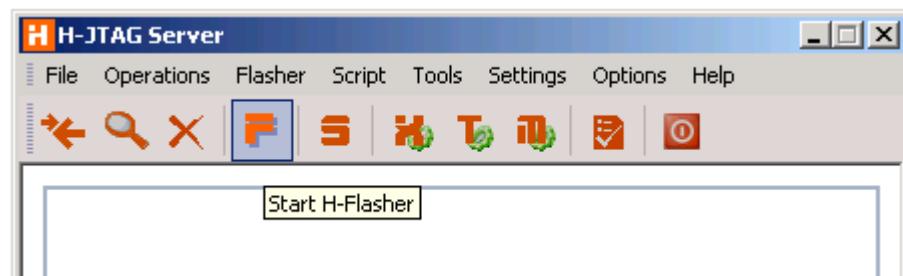
1. Connect the JTAG-Dongle to the board and PC (parallel port).
2. Run **H-JTAG** and check the **LPT Jtag Setting**:



3. Select Detect target:

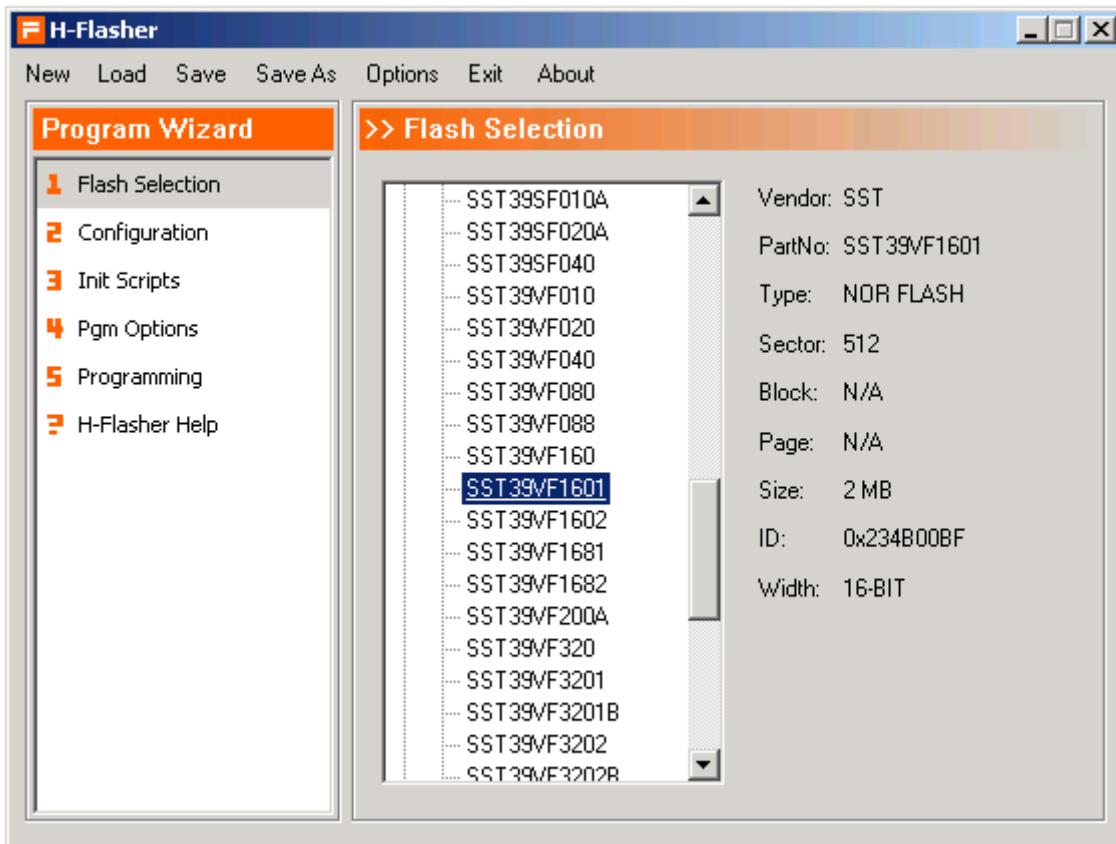


4. Run H-Flasher:



*A new window opens: H-Flasher*

## 5. Set Flash: SST39VF1601

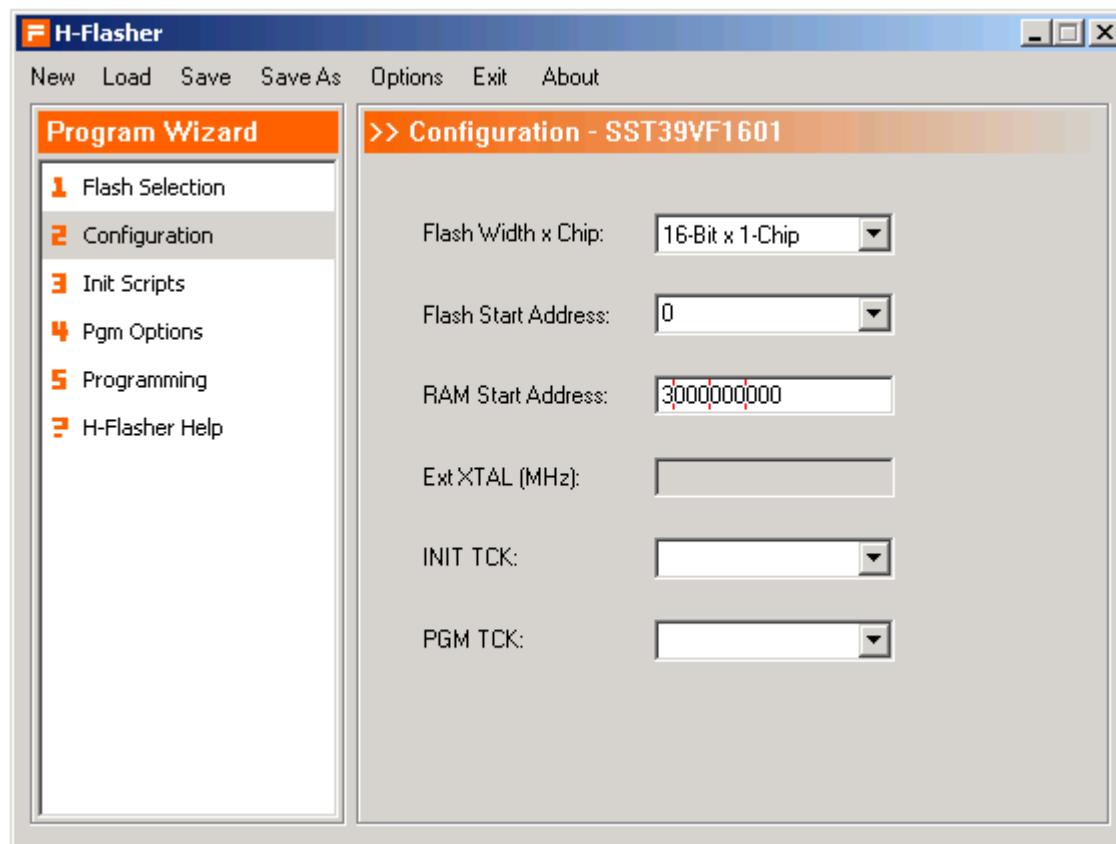


## 6. Select Configuration.

**Flash Width x Chip: 16-Bit x 1-Chip**

**Flash Start Addr: 0**

**RAM Start Addr: 3 000 000 000**

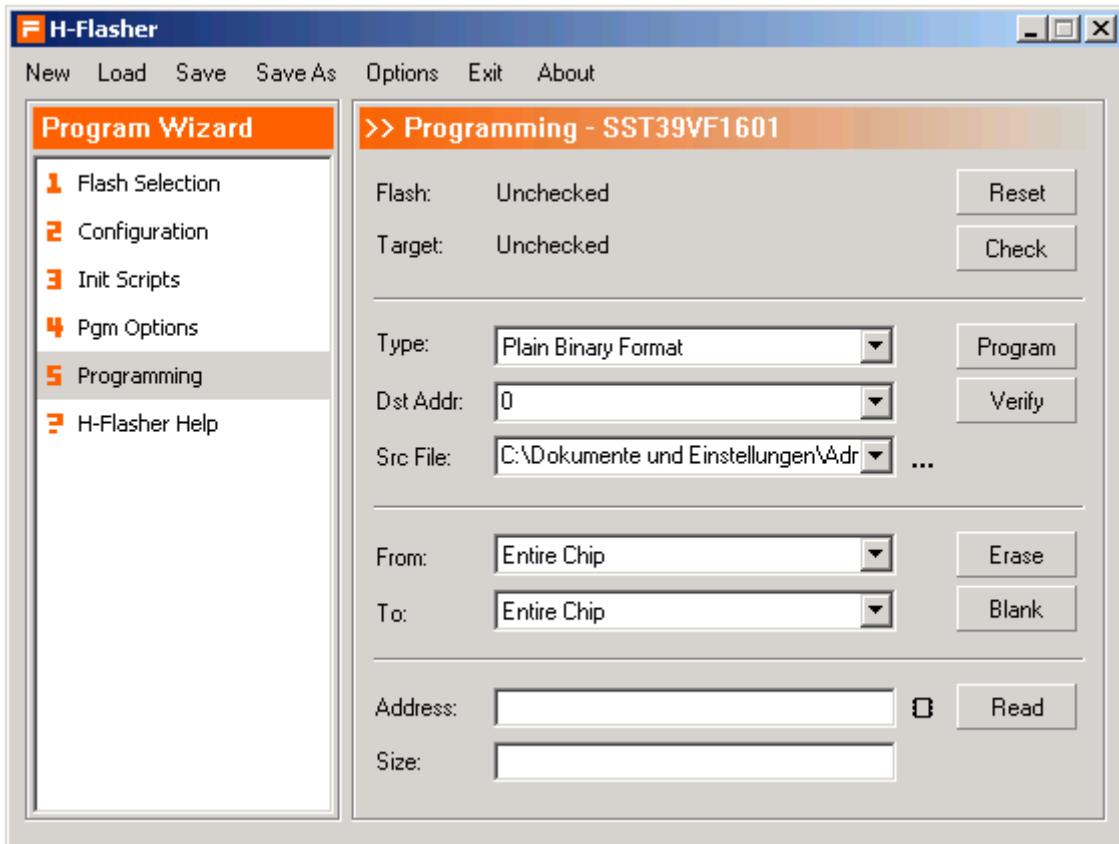


7. Select Programming.

Type: Plain Binary Format

Dst Addr: 0

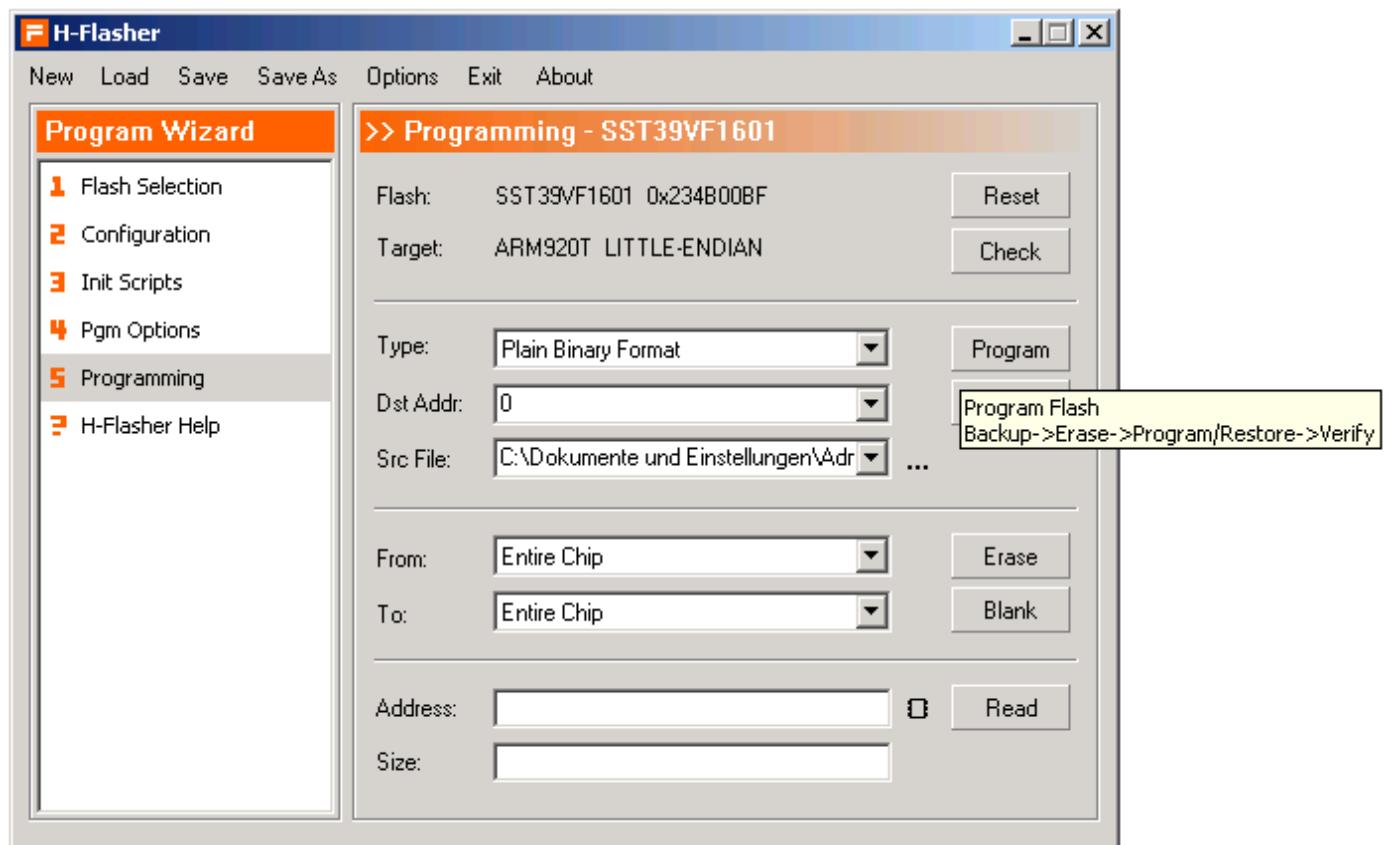
Src File: supervivi-64M or supervivi-128M



8. Press Check to test the target connection.



9. Press **Program** to start the flashing.



10. Wait till programming is finished.

