

Методика записи платы M101 для концентратора КР-8 и абоненского выноса AV-32

Предварительно надо разместить файлы vmImage и rootfs.jffs2 в корневом каталоге tftp сервера. Для записи чистой платы начинаем с пункта 1.

Для обновления прошивки через u-boot начинаем с пункта 6.

И если хотите сохранить текущую конфигурацию, сохраните все файлы с каталоге /root с расширением .xml на компьютере.

1. Подключить jtag, включить плату и запустить программу jtag

```
an@fant:/opt/$ /opt/jtag/bin/jtag.
```

2. Проконтролировать, что определилась flash

```
UrJTAG 0.8 #1120
```

```
Copyright (C) 2002, 2003 ETC s.r.o.
```

```
Copyright (C) 2007, 2008 Kolja Waschk and the respective authors
```

```
UrJTAG is free software, covered by the GNU General Public License, and you are  
welcome to change it and/or distribute copies of it under certain conditions.
```

```
There is absolutely no warranty for UrJTAG.
```

```
WARNING: UrJTAG may damage your hardware!
```

```
Type "quit" to exit, "help" for help.
```

```
Initializing on FTDI device 0403:CFF8
```

```
IR length: 15
```

```
Chain length: 2
```

```
Device Id: 01100010011110100101000011001011 (0x00000000627A50CB)
```

```
Manufacturer: Analog Devices
```

```
Part(0): BF533
```

```
Stepping: 6
```

```
Filename: /opt/jtag/share/urjtag/analog/bf533/bf533
```

```
Device Id: 00000010000010100001000011011101 (0x00000000020A10DD)
```

```
Manufacturer: Altera
```

```
Part(1): EPM240F100
```

```
Stepping: 0
```

```
Filename: /opt/jtag/share/urjtag/altera/epm7128aetc100/epm7128aetc100
```

```
Query identification string:
```

```
Primary Algorithm Command Set and Control Interface ID Code: 0x0002 (AMD/Fujitsu  
Standard Command Set)
```

```
Alternate Algorithm Command Set and Control Interface ID Code: 0x0000 (null)
```

```
Query system interface information:
```

```
Vcc Logic Supply Minimum Write/Erase or Write voltage: 2700 mV
```

```
Vcc Logic Supply Maximum Write/Erase or Write voltage: 3600 mV
```

```
Vpp [Programming] Supply Minimum Write/Erase voltage: 9000 mV
```

```
Vpp [Programming] Supply Maximum Write/Erase voltage: 10000 mV
```

```
Typical timeout per single byte/word program: 16 us
```

Typical timeout for maximum-size multi-byte program: 4 us
Typical timeout per individual block erase: 512 ms
Typical timeout for full chip erase: 32768 ms
Maximum timeout for byte/word program: 256 us
Maximum timeout for multi-byte program: 64 us
Maximum timeout per individual block erase: 8192 ms
Maximum timeout for chip erase: 524288 ms

Device geometry definition:

Device Size: 4194304 B (4096 KiB, 4 MiB)
Flash Device Interface Code description: 0x0002 (x8/x16)
Maximum number of bytes in multi-byte program: 4
Number of Erase Block Regions within device: 2

Erase Block Region Information:

Region 0:

Erase Block Size: 8192 B (8 KiB)

Number of Erase Blocks: 8

Region 1:

Erase Block Size: 65536 B (64 KiB)

Number of Erase Blocks: 63

Primary Vendor-Specific Extended Query:

Major version number: 1
Minor version number: 0
Address Sensitive Unlock: Bad value
Erase Suspend: Read only
Sector Protect: Not supported
Sector Temporary Unprotect: Supported
Sector Protect/Unprotect Scheme: Bad value
Simultaneous Operation: 3 sectors
Burst Mode Type: Bad value
Page Mode Type: Bad value

3. Запрограммировать flash.

```
jtag> flashmem 0x20000000 /opt/u-boot-1.1.6-2008R1-bf533-m101/u-boot.bin
```

4. Проконтролировать, что нет ошибок во время верификации

```
Chip: AMD Flash  
  Manufacturer: Unknown manufacturer (ID 0x001f)  
  Chip: Unknown (ID 0x01c8)  
  Protected: 0090  
program:  
flash_unlock_block 0x20000000 IGNORE  
  
block 0 unlocked  
flash_erase_block 0x20000000  
.....flash_erase_block 0x20000000 DONE  
erasing block 0: 0  
flash_unlock_block 0x20002000 IGNORE
```

```
block 1 unlocked
flash_erase_block 0x20002000
.....flash_erase_block 0x20002000 DONE
erasing block 1: 0
flash_unlock_block 0x20004000 IGNORE

block 2 unlocked
flash_erase_block 0x20004000
.....flash_erase_block 0x20004000 DONE
erasing block 2: 0
flash_unlock_block 0x20006000 IGNORE

block 3 unlocked
flash_erase_block 0x20006000
.....flash_erase_block 0x20006000 DONE
erasing block 3: 0
flash_unlock_block 0x20008000 IGNORE

block 4 unlocked
flash_erase_block 0x20008000
.....flash_erase_block 0x20008000 DONE
erasing block 4: 0
flash_unlock_block 0x2000A000 IGNORE

block 5 unlocked
flash_erase_block 0x2000A000
.....flash_erase_block 0x2000A000 DONE
erasing block 5: 0
flash_unlock_block 0x2000C000 IGNORE

block 6 unlocked
flash_erase_block 0x2000C000
.....flash_erase_block 0x2000C000 DONE
erasing block 6: 0
flash_unlock_block 0x2000E000 IGNORE

block 7 unlocked
flash_erase_block 0x2000E000
.....flash_erase_block 0x2000E000 DONE
erasing block 7: 0
flash_unlock_block 0x20010000 IGNORE

block 8 unlocked
flash_erase_block 0x20010000
.....flash_erase_block 0x20010000 DONE
erasing block 8: 0
addr: 0x2001E342
verify:
addr: 0x2001E342
Done.
```

5. Выйти из программы

```
jtag> quit
```

6. Подключить последовательный порт и ethernet.

7. Запустить терминальную программу с параметрами последовательного порта

- скорость 115200
- число бит 8
- число стоповых бит 1
- контроля четности нет
- управления потоком нет

8. Выключить и затем включить питание.

9. При включении питания, на терминале видим запуск u-boot

```
U-Boot 1.1.6 (ADI-2008R1) (Apr 8 2009 - 18:19:27)
```

```
CPU: ADSP bf533 (Detected Rev: 0.6)
```

```
Board: M101-2 BF533.
```

```
Clock: VCO: 400 MHz, Core: 400 MHz, System: 100 MHz
```

```
RAM: 32 MB
```

```
Flash: 4 MB
```

```
*** Warning - bad CRC, using default environment
```

```
In: serial
```

```
Out: serial
```

```
Err: serial
```

```
Net: dm9000 i/o: 0x20300000, id: 0x90000a46
```

```
operating at 100M full duplex mode
```

```
MAC: 00:50:C2:73:60:00
```

```
Hit any key to stop autoboot: 0
```

11. Прерывать запуск нажатием любой клавиши

12. Ввести mac-адрес и сохранить

```
bfin> setenv ethaddr 00:50:C2:73:60:B5
```

```
bfin> saveenv
```

```
Saving Environment to Flash...
```

```
Un-Protected 1 sectors
```

```
Erasing Flash...
```

```
Erasing Flash locations, Please Wait
Erased 1 sectors
Writing to Flash... ..done
Protected 1 sectors
bfin>
```

13. Записать kernel и файловую систему

```
bfin> run update_kernel
```

```
dm9000 i/o: 0x20300000, id: 0x90000a46
operating at 100M full duplex mode
TFTP from server 10.10.20.200; our IP address is 10.10.20.33
Filename 'vmImage'.
Load address: 0x1000000
Loading: #####
          #####
          #####
done
Bytes transferred = 783822 (bf5ce hex)

EEPROM @0x0 write: addr 01000000 off 10000 count 783822 ... ..
```

```
bfin> run update_fs
```

```
dm9000 i/o: 0x20300000, id: 0x90000a46
operating at 100M full duplex mode
TFTP from server 10.10.20.200; our IP address is 10.10.20.33
Filename 'rootfs.jffs2'.
Load address: 0x1000000
Loading: #####
          #####
          #####
          #####
          #####
          #####
          #####
          #####
          #####
          #####
          #
done
Bytes transferred = 3997696 (3d0000 hex)

Erasing Flash locations, Please Wait
Erased 61 sectors
```

```
Copy to Flash... ..  
.....  
.....done  
bfin>
```

14. Перезапустить плату и проконтролировать запуск uClinux

```
bfin> reset
```

```
U-Boot 1.1.6 (ADI-2008R1) (Apr 8 2009 - 18:19:27)
```

```
CPU: ADSP bf533 (Detected Rev: 0.6)  
Board: M101-2 BF533.  
Clock: VCO: 400 MHz, Core: 400 MHz, System: 100 MHz  
RAM: 32 MB  
Flash: 4 MB  
In: serial  
Out: serial  
Err: serial  
Net: dm9000 i/o: 0x20300000, id: 0x90000a46  
operating at 100M full duplex mode  
MAC: 00:50:C2:73:60:B6  
Hit any key to stop autoboot: 0
```

```
EEPROM @0x0 read: addr 01000000 off 10000 count  
1048575 ... ..done
```

```
## Booting image at 01000000 ...
```

```
Image Name: Linux-2.6.22.18-ADI-2008R1-svn  
Created: 2010-11-26 11:56:25 UTC  
Image Type: Blackfin Linux Kernel Image (gzip compressed)  
Data Size: 783758 Bytes = 765.4 kB  
Load Address: 00001000  
Entry Point: 00154000  
Verifying Checksum ... OK  
Uncompressing Kernel Image ... OK
```

```
Starting Kernel at = 154000
```

```
Linux version 2.6.22.18-ADI-2008R1-svn (an@fant) (gcc version 4.1.2 (ADI svn)) #436 Fri Nov  
26 13:56:19 EET 2010
```

```
Hardware Trace Active and Enabled
```

```
Reset caused by Software reset
```

```
Blackfin support (C) 2004-2007 Analog Devices, Inc.
```

```
Compiled for ADSP-BF533 Rev 0.5
```

```
Warning: Compiled for Rev 5, but running on Rev 6
```

```
Blackfin Linux support by http://blackfin.uclinux.org/
```

```
Processor Speed: 400 MHz core clock and 100 MHz System Clock
```

```
Board Memory: 32MB
```

```
Kernel Managed Memory: 32MB
```

```
Memory map:
```

```
text    = 0x00001000-0x000f4630
rodata  = 0x000f5000-0x00141964
data    = 0x00142000-0x00154000
  stack = 0x00142000-0x00144000
init    = 0x00154000-0x0016b000
bss     = 0x0016b000-0x00179f30
available = 0x00179f30-0x01eff000
DMA Zone = 0x01f00000-0x02000000
Instruction Cache Enabled
Data Cache Enabled (write-through)
Built 1 zonelists. Total pages: 7874
Kernel command line: console=ttyBF0,115200 root=/dev/mtdblock2 rw rootfstype=jffs2
ip=10.10.20.33:10.10.20.200:10.10.20.93:255.255.255.0:M101:eth0:off
Configuring Blackfin Priority Driven Interrupts
PID hash table entries: 128 (order: 7, 512 bytes)
bfin-rtc: invalid date; resetting
Dentry cache hash table entries: 4096 (order: 2, 16384 bytes)
Inode-cache hash table entries: 2048 (order: 1, 8192 bytes)
Memory available: 29932k/32768k RAM, (92k init code, 973k kernel code, 442k data, 1024k
dma, 304k reserved)
Blackfin Scratchpad data SRAM: 4 KB
Blackfin Data A SRAM: 16 KB (15 KB free)
Blackfin Data B SRAM: 16 KB (16 KB free)
Blackfin Instruction SRAM: 64 KB (56 KB free)
Mount-cache hash table entries: 512
NET: Registered protocol family 16
Blackfin GPIO Controller
Blackfin DMA Controller
m101_init(): registering device resources
NET: Registered protocol family 2
IP route cache hash table entries: 1024 (order: 0, 4096 bytes)
TCP established hash table entries: 1024 (order: 1, 8192 bytes)
TCP bind hash table entries: 1024 (order: 0, 4096 bytes)
TCP: Hash tables configured (established 1024 bind 1024)
TCP reno registered
JFFS2 version 2.2. (NAND) © 2001-2006 Red Hat, Inc.
io scheduler noop registered
io scheduler anticipatory registered (default)
io scheduler cfq registered
bfin-wdt: initialized: timeout=20 sec (nowayout=0)
Serial: Blackfin serial driver
bfin-uart.1: ttyBF0 at MMIO 0xffc00400 (irq = 21) is a BFIN-UART
RAMDISK driver initialized: 16 RAM disks of 4096K size 1024 blocksize
dm9000 Ethernet Driver
eth0: dm9000 at 20300000,20300002 IRQ 36 MAC: 00:50:c2:73:60:b6
BF5xx-Flash: probing 16-bit flash bus
Found: Atmel AT49BV32X
BF5xx-Flash: Found 1 x16 devices at 0x0 in 16-bit bank
number of JEDEC chips: 1
cfi_cmdset_0002: Disabling erase-suspend-program due to code brokenness.
cmdlinepart partition parsing not available
RedBoot partition parsing not available
```

```

BF5xx-Flash: Using board partition definition
Creating 3 MTD partitions on "BF5xx-Flash":
0x00000000-0x00020000 : "Bootloader"
mtd: Giving out device 0 to Bootloader
0x00020000-0x00030000 : "Environment"
mtd: Giving out device 1 to Environment
0x00030000-0x00400000 : "RootFS"
mtd: Giving out device 2 to RootFS
bfin-spi bfin-spi.0: Blackfin BF5xx on-chip SPI Contoller Driver, Version 1.0,
regs_base@ffc00500, dma channel@5
rtc-bfin rtc-bfin: rtc core: registered rtc-bfin as rtc0
mmc_pio_spi:cs #: 0xb, baud=0x0, flag=0xff00, ctrl=0x400
TCP cubic registered
NET: Registered protocol family 1
NET: Registered protocol family 17
rtc-bfin rtc-bfin: setting the system clock to 1970-01-01 00:00:02 (2)
eth0: link up, 100Mbps, full-duplex, lpa 0x45E1
IP-Config: Complete:
    device=eth0, addr=10.10.20.33, mask=255.255.255.0, gw=10.10.20.93,
    host=M101, domain=, nis-domain=(none),
    bootserver=10.10.20.200, rootserver=10.10.20.200, rootpath=
VFS: Mounted root (jffs2 filesystem).
Freeing unused kernel memory: 92k freed
dma_alloc_init: dma_page @ 0x01c47000 - 256 pages at 0x01f00000
#####
#          CONCENTRATOR 8E1 PRI          #
#      Nika Ltd. Vinnitsa, Ukraine, 2008-2009      #
#####

BusyBox v1.4.1 (2009-05-19 16:40:05 EEST) Built-in shell (msh)
Enter 'help' for a list of built-in commands.

root:/> [01/Jan/1970:00:00:15 +0000] boa: server version Boa/0.94.14rc21
[01/Jan/1970:00:00:15 +0000] boa: server built May 26 2009 at 19:27:48.
[01/Jan/1970:00:00:15 +0000] boa: starting server pid=44, port 80

```

Дополнительно для концентратора выполнить

- 1. Скорректировать файл /etc/rc (убрать '#' в строке sh /root/boot.sh)**
- 2. Перезапустить плату**

Дополнительно для АВ-32 выполнить

- 1. Зайти на ftp-сервер и удалить файлы uclinux-config.gz, switch.rbf, boot.sh в папке /root**
- 2. Записать файлы в папки /root, /home/httpd, /etc**
- 3. Скорректировать файл /etc/rc (убрать '#' в строке sh /root/boot_cbank.sh)**
- 4. Перезапустить плату**