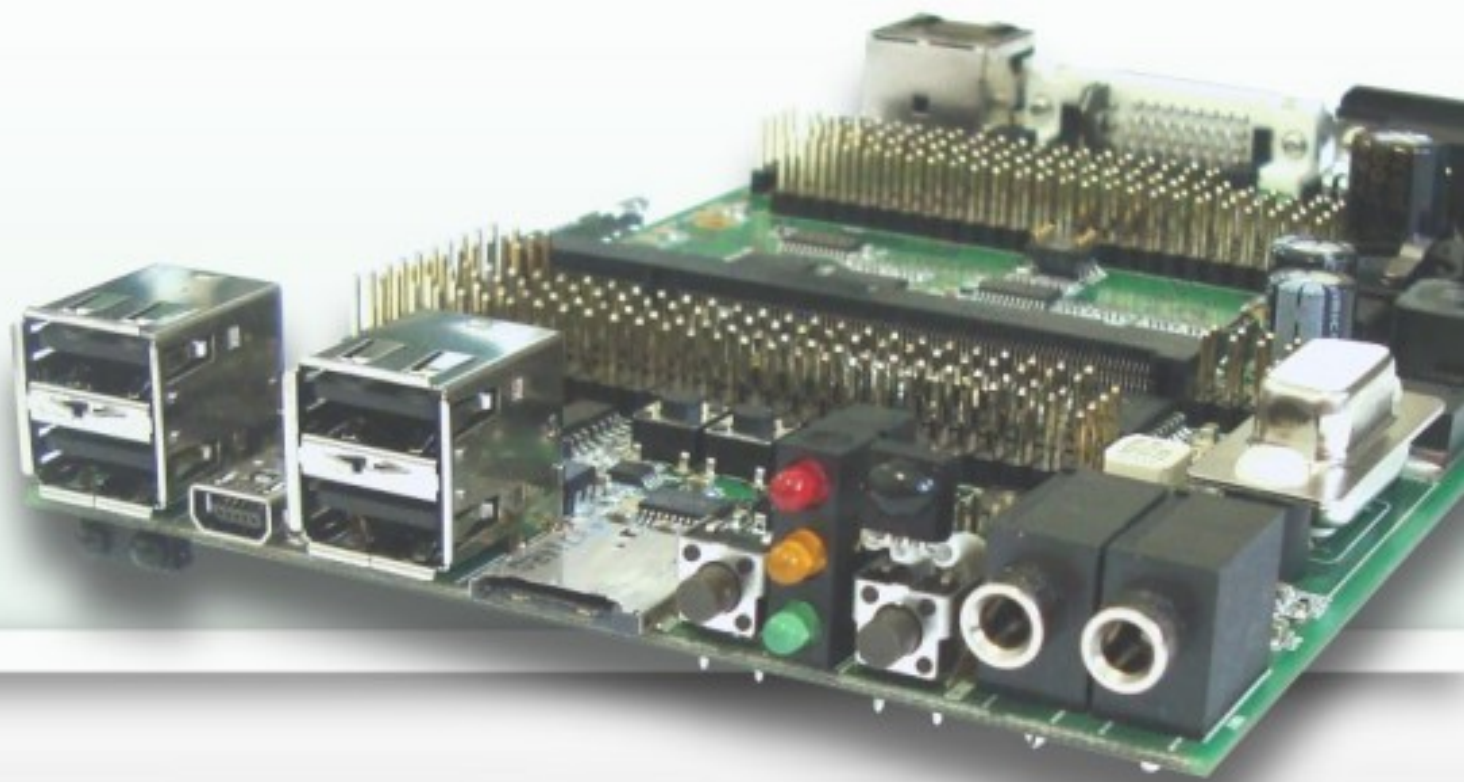




i.MX53 Development Kit **QUICK GUIDE**



voipac

Release Date: January 15, 2013

About Voipac i.MX53 Development kit	4
<i>Packing List</i>	4
<i>Connector Locations</i>	5
<i>Connecting the components and cables</i>	5
First Step	6
<i>Controlling the Development Kit over serial line</i>	6
<i>Using external monitor (or supplied TFT panel) and USB Keyboard</i>	7
<i>Controlling the Development Kit over Ethernet (telnet, ssh, ftp, sftp)</i>	7
Open On-Chip Debugger 0.6.0 with Voipac`s JTAG Cable under WinXP	9
<i>JTAG Cable Installation</i>	9
<i>How to run Open On-Chip Debugger</i>	9
<i>How to connect to Open On-Chip Debugger using Telnet</i>	10
<i>How to connect to Open On-Chip Debugger using terminal (TeraTerm)</i>	11
<i>How to load bootloader into i.MX53 SODIMM Module (barebox.bin)</i>	12
<i>How to flash barebox through the TeraTerm</i>	16
<i>How to flash zImage and rootfs through the TeraTerm</i>	18
Important and Practical Information	20
<i>E-Fuses</i>	20
<i>Changing MAC Address</i>	21
<i>Mounting Fasteners</i>	23
<i>Products` Life Cycle Phase</i>	23
<i>CE compliance of Voipac products</i>	24
TECHNICAL SUPPORT	24

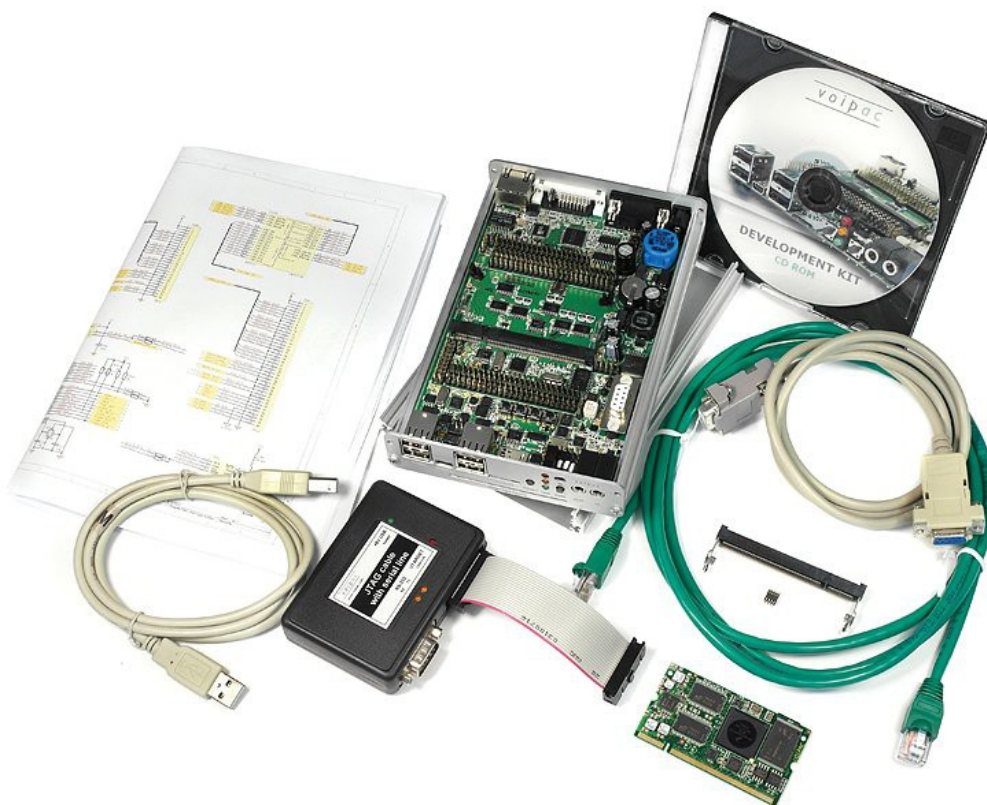
About Voipac i.MX53 Development kit

Voipac i.MX25 SODIMM Baseboard is designed to be used as development platform for the Voipac cross-compatible i.MX53/i.MX51/i.MX25 SODIMM Modules. Together they create a low power system with excellent MIPS/mW performance allowing deployment in situation where power source is limited. Besides the standard PC peripheral interfaces, the system provides numerous communication channels as well as universal expansion slots and connectors.

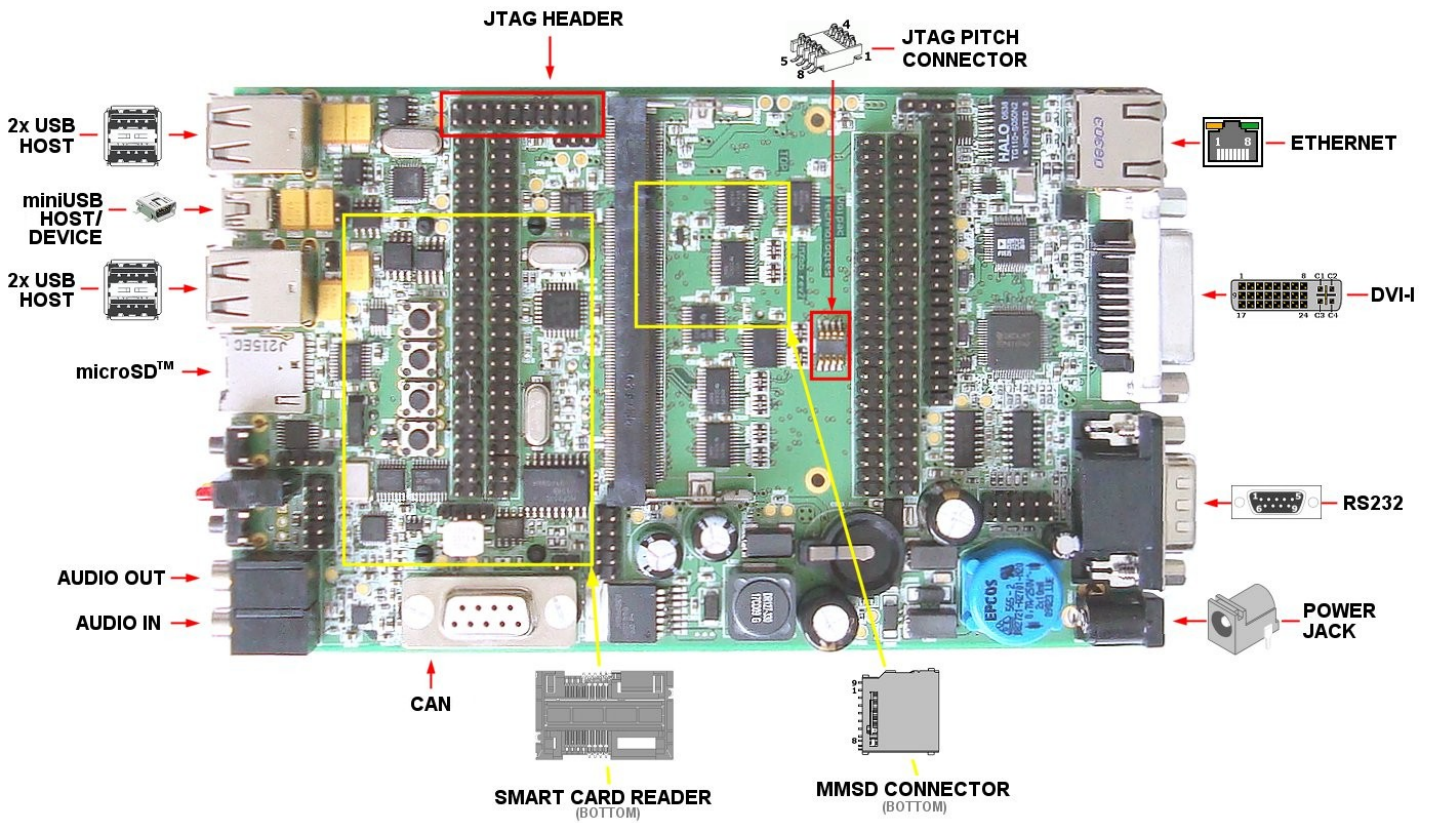
This QuickGuide shows, how to install JTAG Cable, load Linux using TeraTerm. Programs run under Windows XP.

Packing List

COMPONENTS	QUANTITY
SODIMM Base Board	1
SODIMM Module	1
JTAG cable with serial line	1
Support CD	1
Aluminium case set	1
Serial port cable	1
Crossover Ethernet cable	1
SODIMM socket	1
JTAG pitch compression connector	1
SODIMM Module Printed Schematics	1
Mounting Fastener	2
Quickguide Brochure	1
DATAIMAGE TFT display with touchscreen set <i>(Optional)</i>	1
OPTREX TFT display with touchscreen set <i>(Optional)</i>	1
EDT TFT multitouch capacitive display with mounting ears set <i>(Optional)</i>	1



Connector Locations

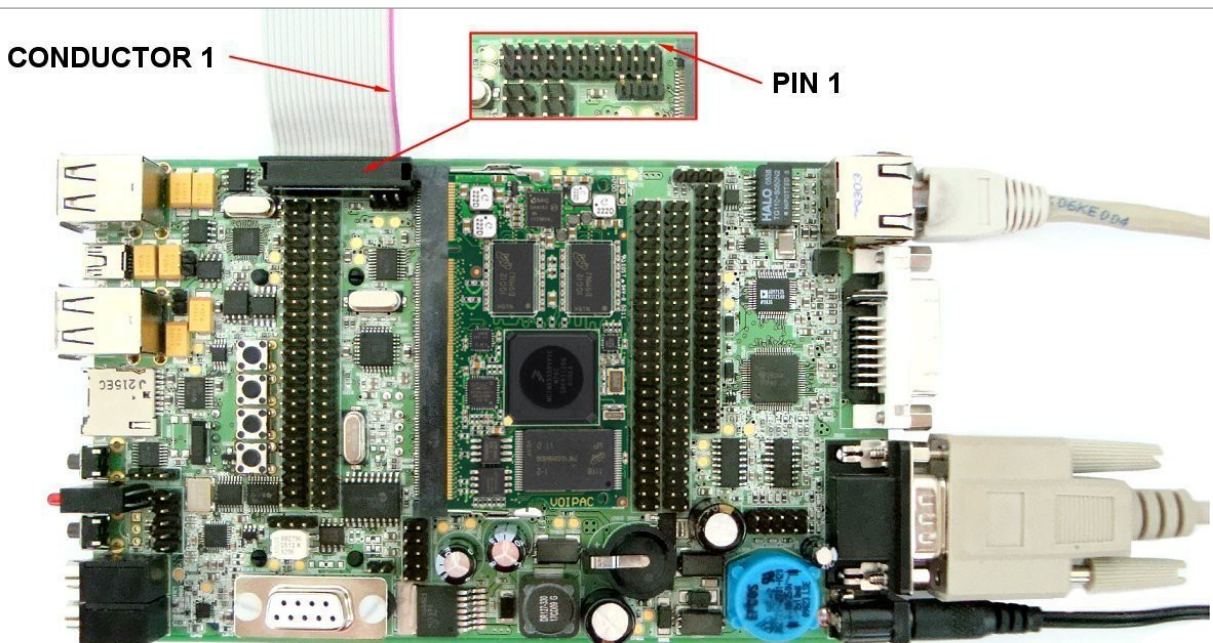


Connecting the components and cables

Prepare Baseboard and plug in JTAG Cable with Serial line, Ethernet cable and other devices or interfaces you need.



IMPORTANT! Be careful when connecting JTAG's 20 conductor flat cable to the board. Check if the conductor 1 is connected to Pin 1 (Header connector J901) on the board before you turn on the board.



Using external monitor (or supplied TFT panel) and USB Keyboard

Recommended HW:

- a) External monitor with DVI or VGA connector (for VGA monitor is required to use DVI to VGA adapter)
DATAIMAGE TFT Display (optional, <http://voipac.com/#27M-TFT-000>)
OPTREX TFT Display (optional, <http://www.voipac.com/#X51-TFT-000>)
EDT TFT Display (optional, <http://voipac.com/#X53-TFT-000>)
- b) Voipac i.MX53 development kit

Recommended SW:



IMPORTANT!

External monitor must support at least one of following resolutions 640x480px, 800x480px, 800x600px, 1024x720px, 1280x800px or 1600x1200px.

Controlling the development kit using external monitor and USB Keyboard

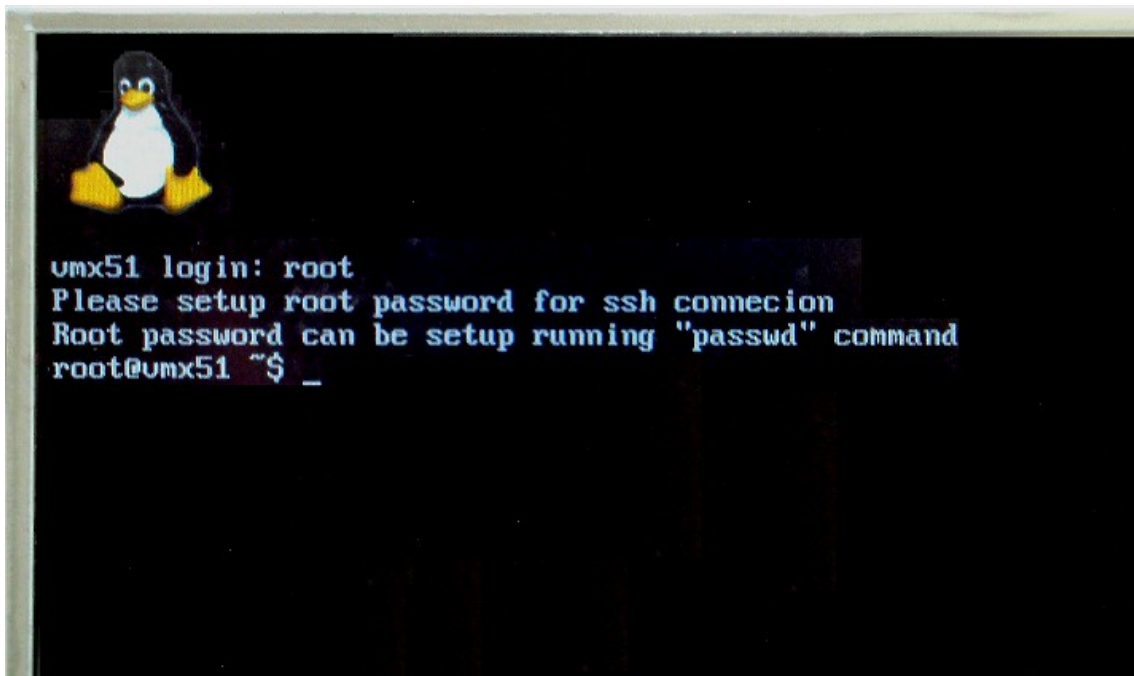


Illustration Photo

Controlling the Development Kit over Ethernet (telnet, ssh, ftp, sftp)

Recommended HW:

- a) PC with Ethernet
- b) Voipac i.MX53 development kit
- c) Ethernet cable (<http://voipac.com/#X25-CEC-000>)

Recommended SW:

- Telnet client (Telnet, PUTTY, ...)
- SSH client (SSH, PUTTY, ...)
- FTP client (FTP, Filezilla, BareFTP, ...)
- SFTP client (Filezilla, PUTTY, WinSCP, ...)

IMPORTANT!



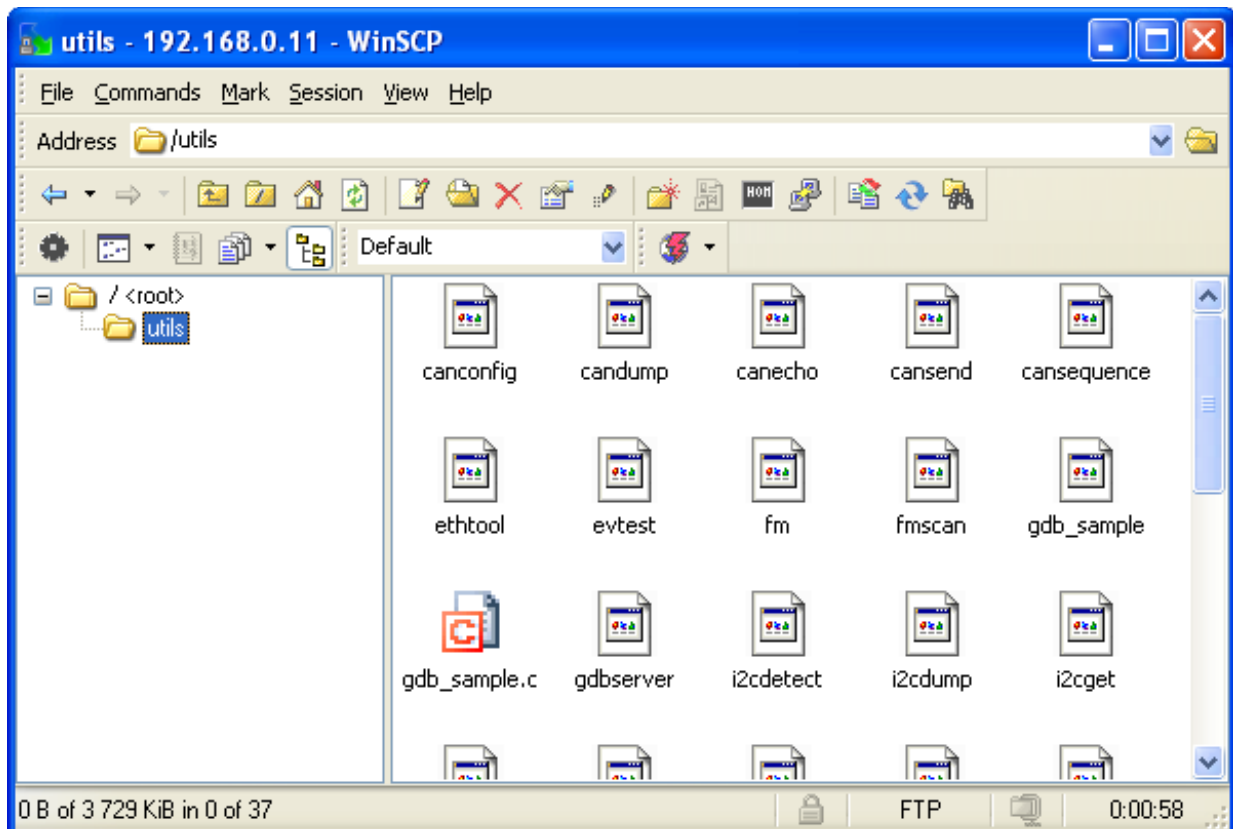
Demo modules are shipped with empty root password.
The default IP address is dynamic and setup by your dhcp server upon boot.

SSH, SFTP require root password to be set up. (“passwd” command)
FTP, SFTP are recommended only for data transfers. (binary mode is recommended)

Controlling the development kit using PUTTY



Controlling the development kit using WinSCP (Explorer Interface)



Open On-Chip Debugger 0.6.0 with Voipac`s JTAG Cable under WinXP

JTAG Cable Installation

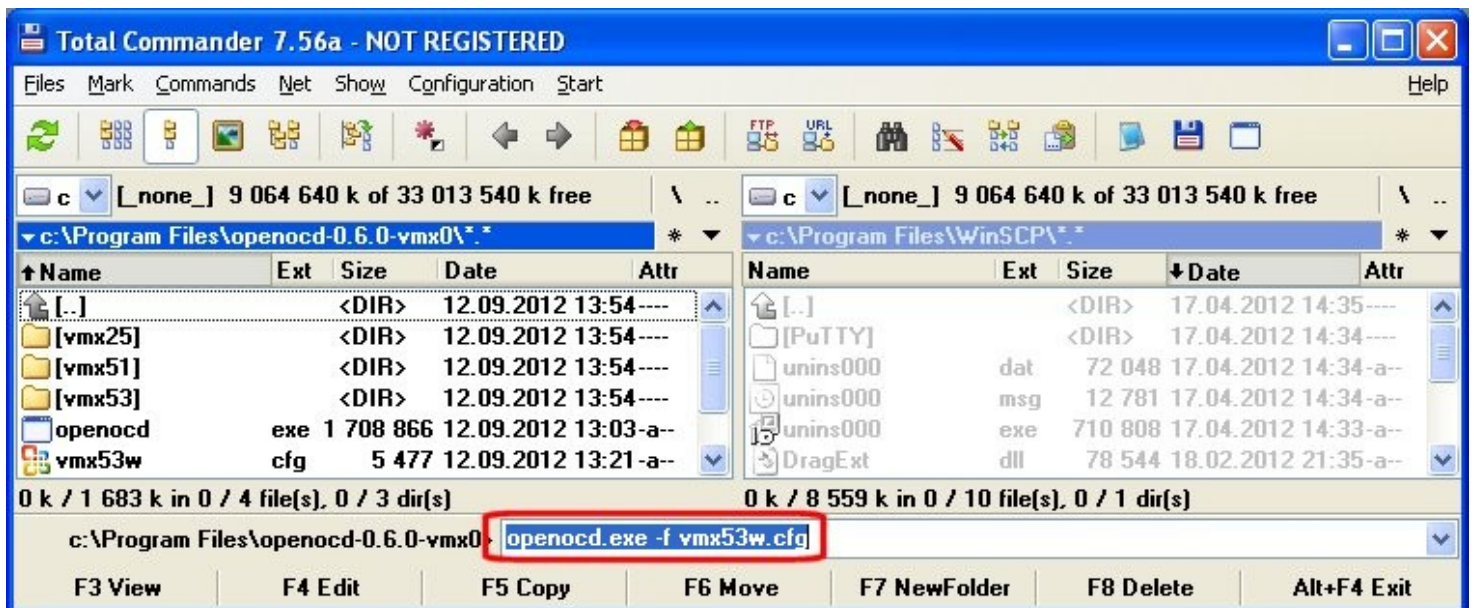
- 1** STEP Connect JTAG Cable to USB port on your computer. JTAG Cable will be installed automatically and prepared for usage.

- 2** STEP Download OpenOCD v 0.6.0 (<http://www.voipac.com/downloads/imx/jtag/bin/openocd-0.6.0-vmx0.zip>).

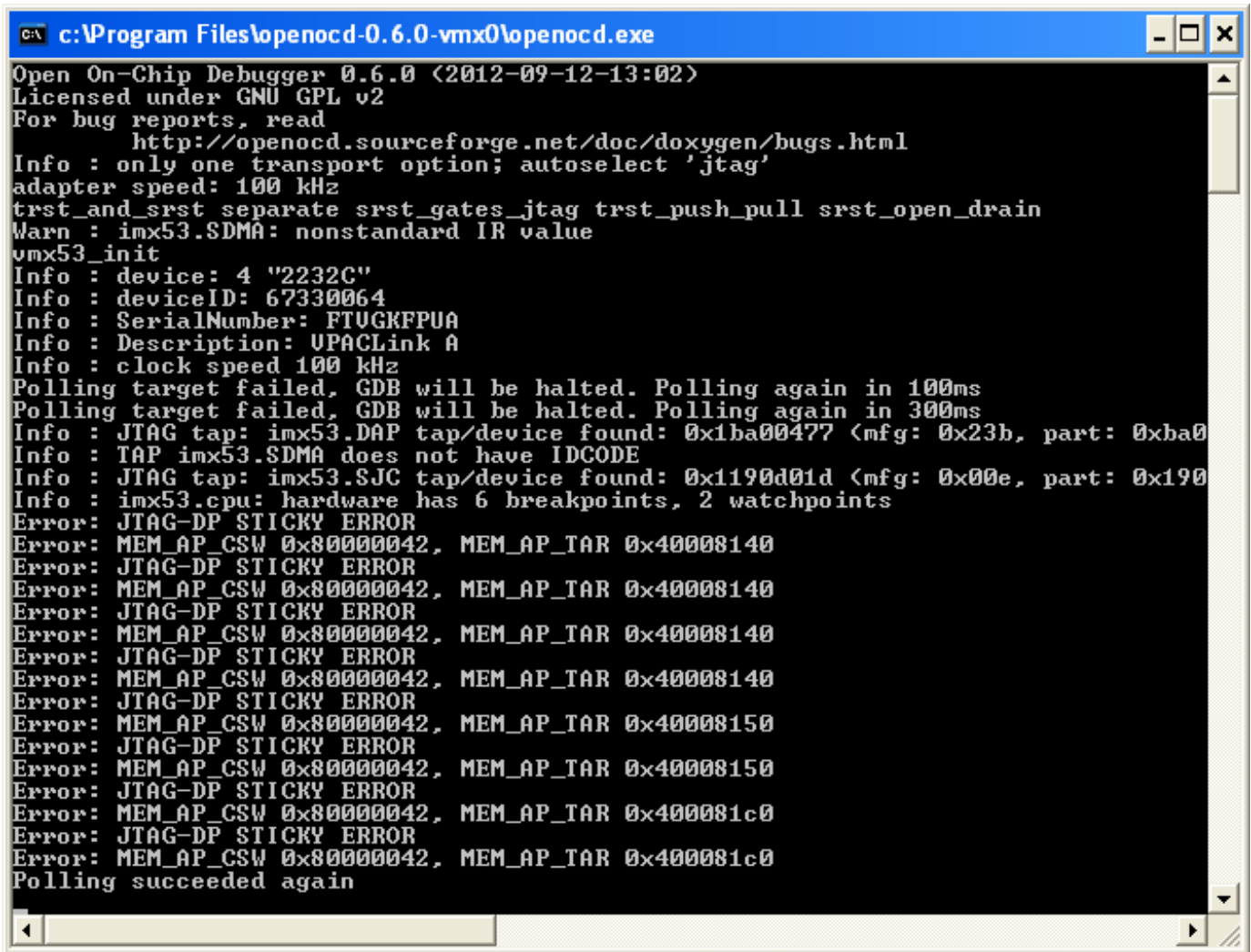
- 3** STEP Unzip the file and place to the folder you want to.

How to run Open On-Chip Debugger

- 4** STEP Run OpenOCD using, for example, Total Commander. Open the folder where is placed the unzipped file. Type in command line: **openocd -f vmx53w.cfg**. Press [Enter].



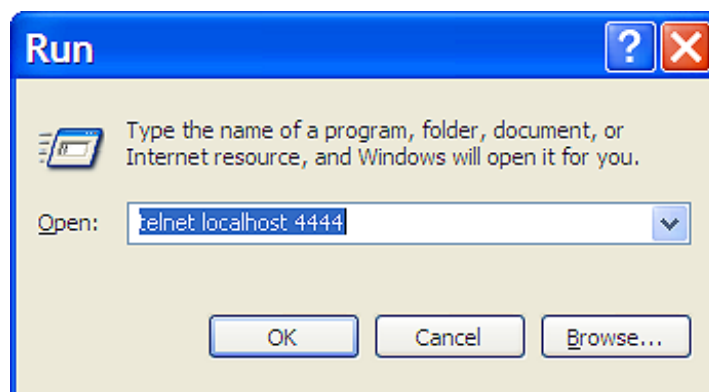
Open On-Chip Debugger is running.



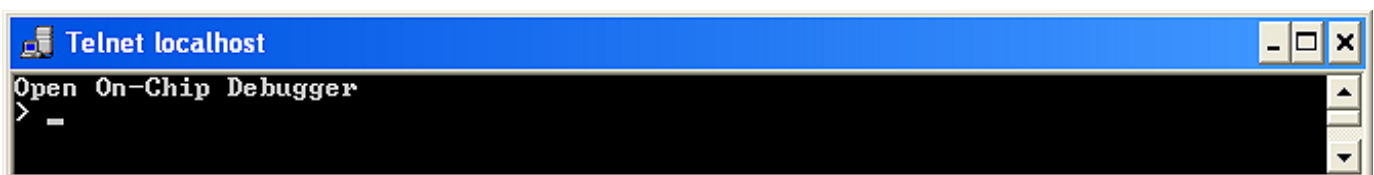
```
c:\Program Files\openocd-0.6.0-vmx0\openocd.exe
Open On-Chip Debugger 0.6.0 (2012-09-12-13:02)
Licensed under GNU GPL v2
For bug reports, read
  http://openocd.sourceforge.net/doc/doxygen/bugs.html
Info : only one transport option; autoselect 'jtag'
adapter speed: 100 kHz
trst_and_srst separate srst_gates_jtag trst_push_pull srst_open_drain
Warn : imx53.SDMA: nonstandard IR value
vmx53_init
Info : device: 4 "2232C"
Info : deviceID: 67330064
Info : SerialNumber: FTUGKFPUA
Info : Description: UPACLink A
Info : clock speed 100 kHz
Polling target failed, GDB will be halted. Polling again in 100ms
Polling target failed, GDB will be halted. Polling again in 300ms
Info : JTAG tap: imx53.DAP tap/device found: 0x1ba00477 (mfg: 0x23b, part: 0xba0
Info : TAP imx53.SDMA does not have IDCODE
Info : JTAG tap: imx53.SJC tap/device found: 0x1190d01d (mfg: 0x00e, part: 0x190
Info : imx53.cpu: hardware has 6 breakpoints, 2 watchpoints
Error: JTAG-DP STICKY ERROR
Error: MEM_AP_CSW 0x80000042, MEM_AP_TAR 0x40008140
Error: JTAG-DP STICKY ERROR
Error: MEM_AP_CSW 0x80000042, MEM_AP_TAR 0x40008140
Error: JTAG-DP STICKY ERROR
Error: MEM_AP_CSW 0x80000042, MEM_AP_TAR 0x40008140
Error: JTAG-DP STICKY ERROR
Error: MEM_AP_CSW 0x80000042, MEM_AP_TAR 0x40008140
Error: JTAG-DP STICKY ERROR
Error: MEM_AP_CSW 0x80000042, MEM_AP_TAR 0x40008150
Error: JTAG-DP STICKY ERROR
Error: MEM_AP_CSW 0x80000042, MEM_AP_TAR 0x40008150
Error: JTAG-DP STICKY ERROR
Error: MEM_AP_CSW 0x80000042, MEM_AP_TAR 0x400081c0
Error: JTAG-DP STICKY ERROR
Error: MEM_AP_CSW 0x80000042, MEM_AP_TAR 0x400081c0
Polling succeeded again
```

How to connect to Open On-Chip Debugger using Telnet

- 5** STEP Click on Start/Run, type **telnet localhost 4444** and click on OK button.



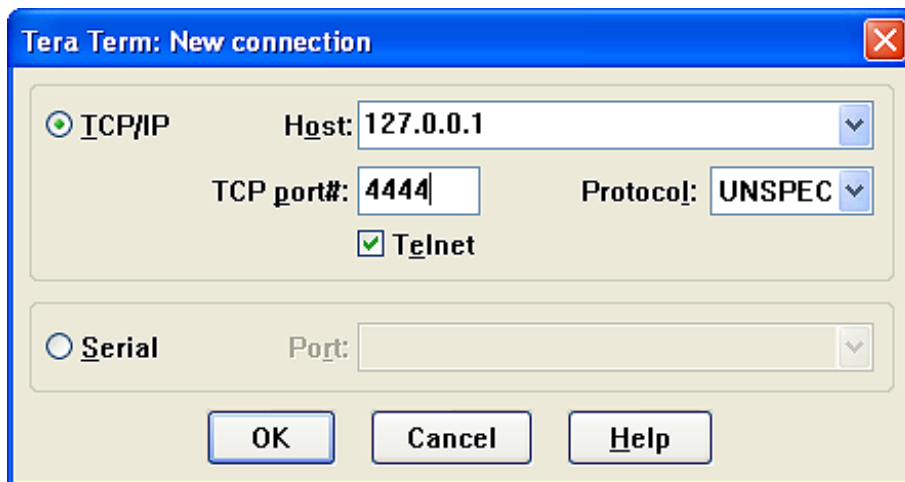
Open On-Chip Debugger is running.



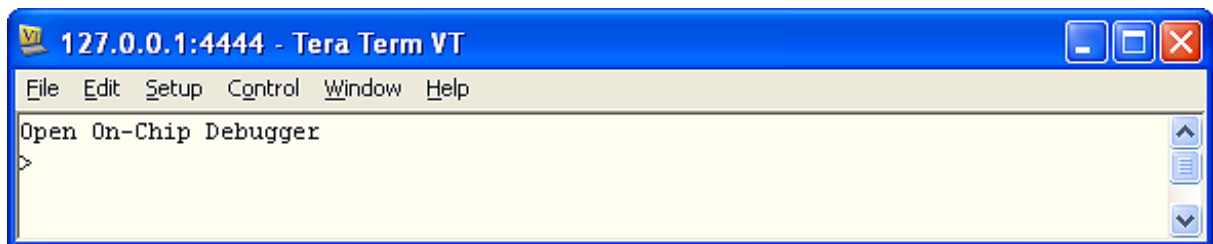
```
Telnet localhost
Open On-Chip Debugger
>
```

How to connect to Open On-Chip Debugger using terminal (TeraTerm)

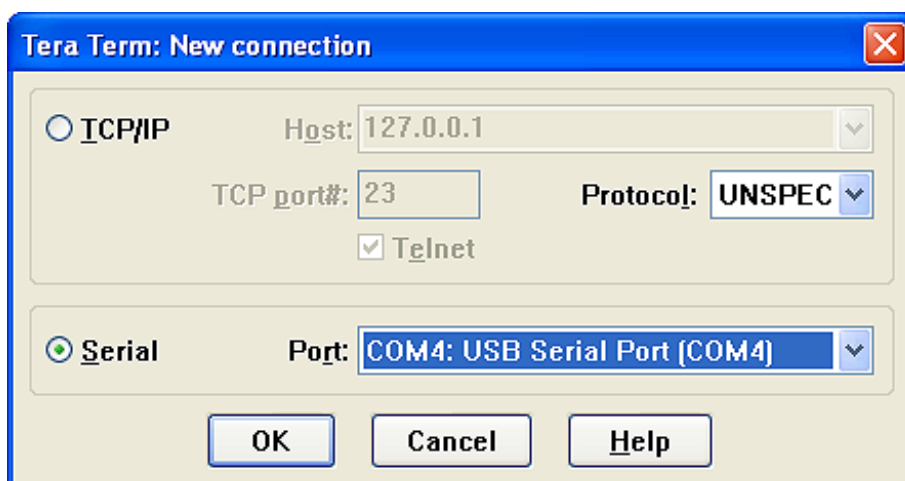
- 6 STEP** Open TeraTerm program, click on File/New Connection, check TCP/IP and type **4444** into TCP port# field. Press OK.



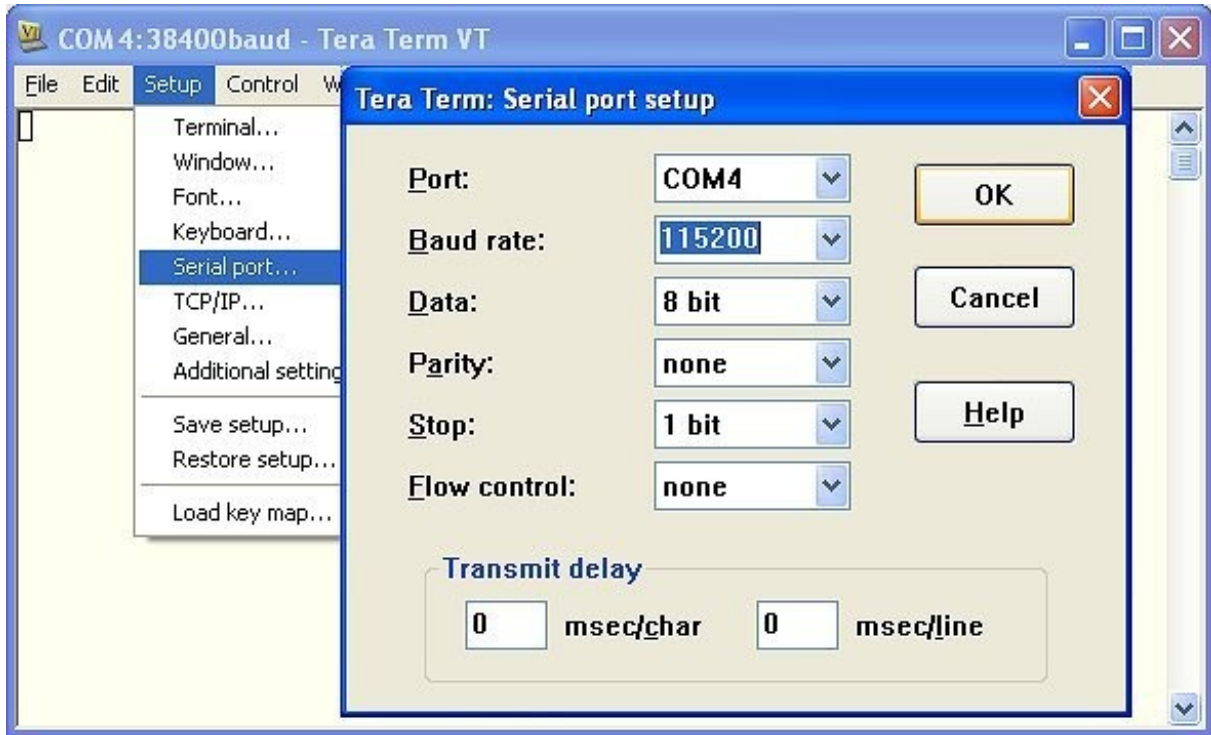
Open On-Chip Debugger over TeraTerm program is running.



- 7 STEP** Open TeraTerm program, click on File/New Connection, check Serial and choose the port where the JTAG cable is connected to a PC.



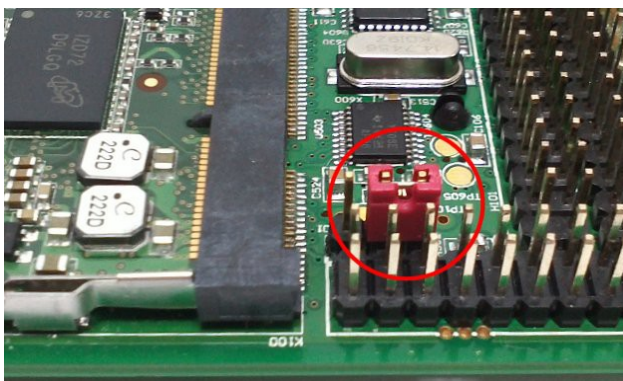
8 STEP Click on Setup, choose Serial port and set Baud rate. (115200, 8n1)



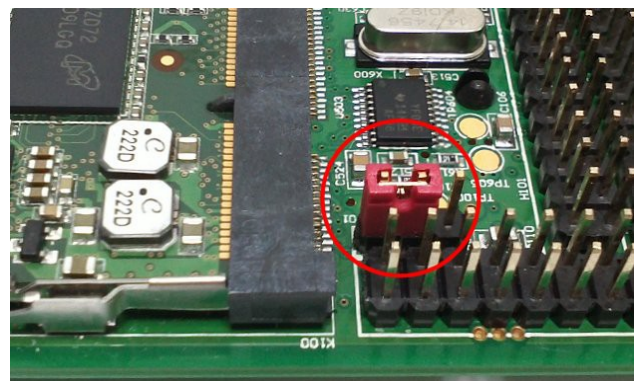
How to load bootloader into i.MX53 SODIMM Module (barebox.bin)

9 STEP Check **H902** jumper (BOOTMODE) on the baseboard to select **Serial boot**, by connecting pins 1 and 2 together.

Direct Boot (Boot from E-Fuses) is selected as the bootmode by connecting pins 2 and 3 together.



Serial Boot



Direct Boot (Boot from E-Fuses)

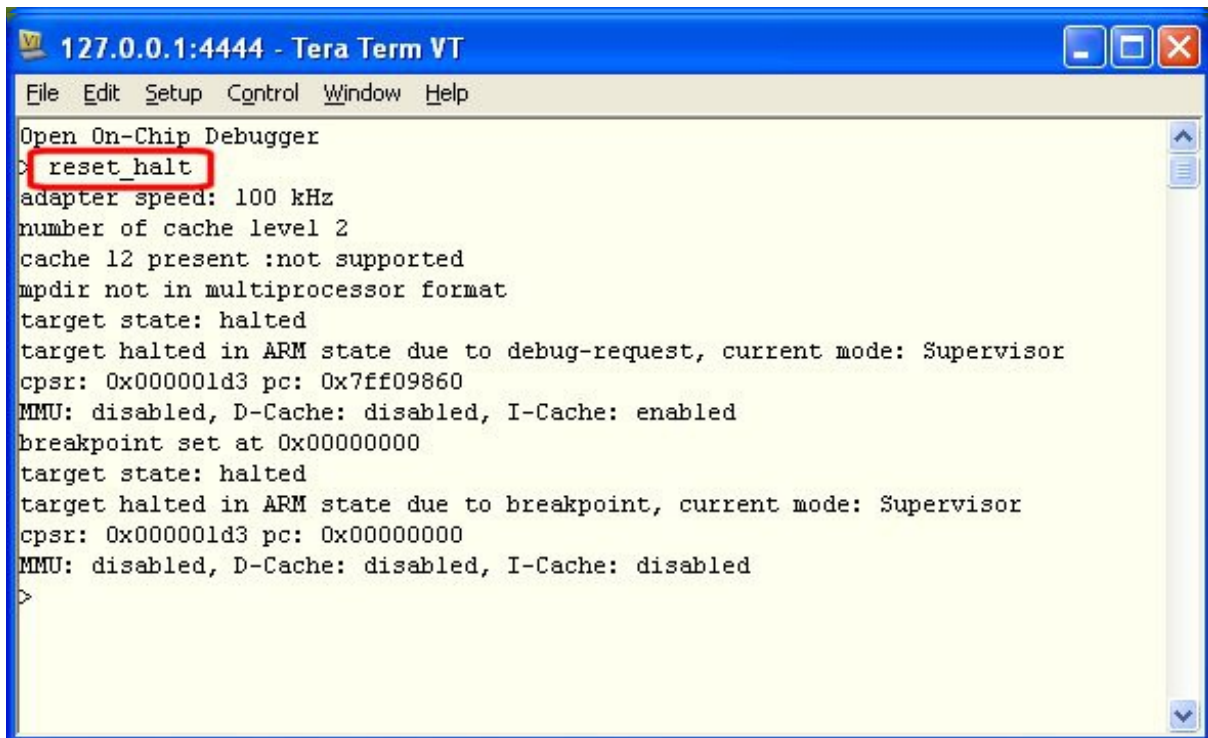


(Note) *Serial Boot is for the first flashing of the module or if the image written in the Flash cannot boot.
Direct Boot is for normal module working*

10
STEP

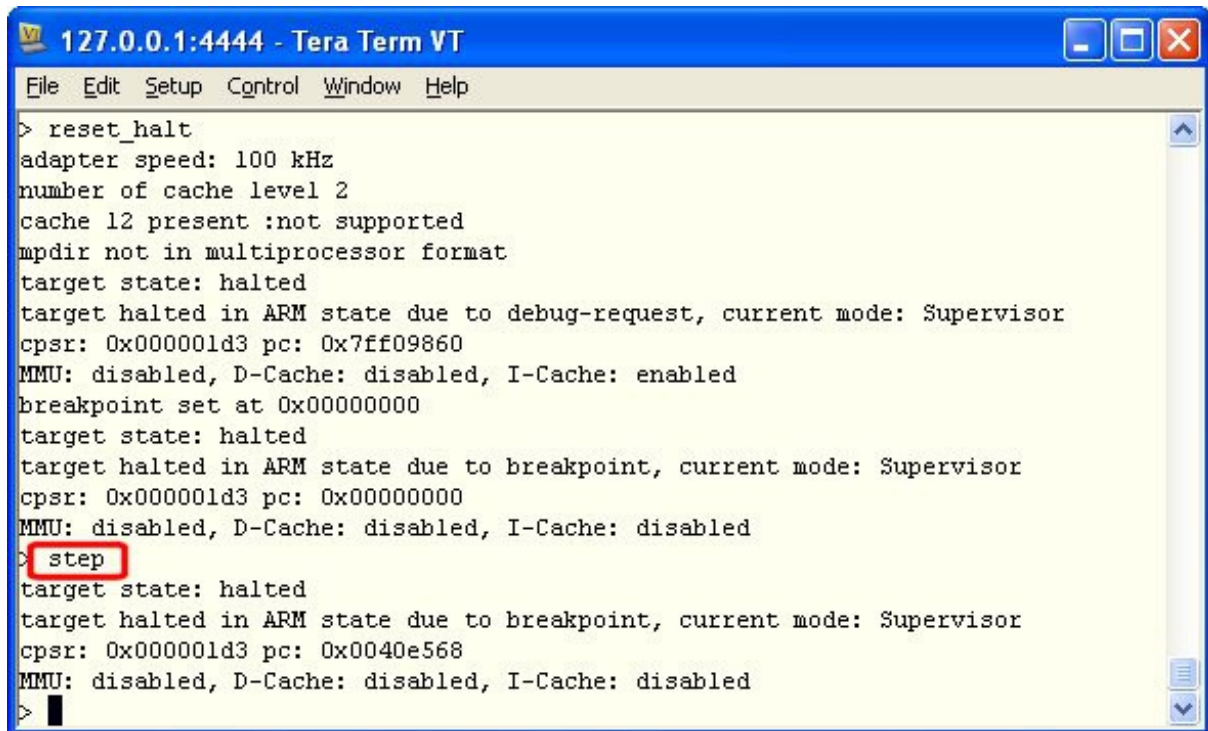
Type or paste commands into TCP/IP console (Open On-Chip Debugger connection):

Type **reset_halt** and press [Enter].



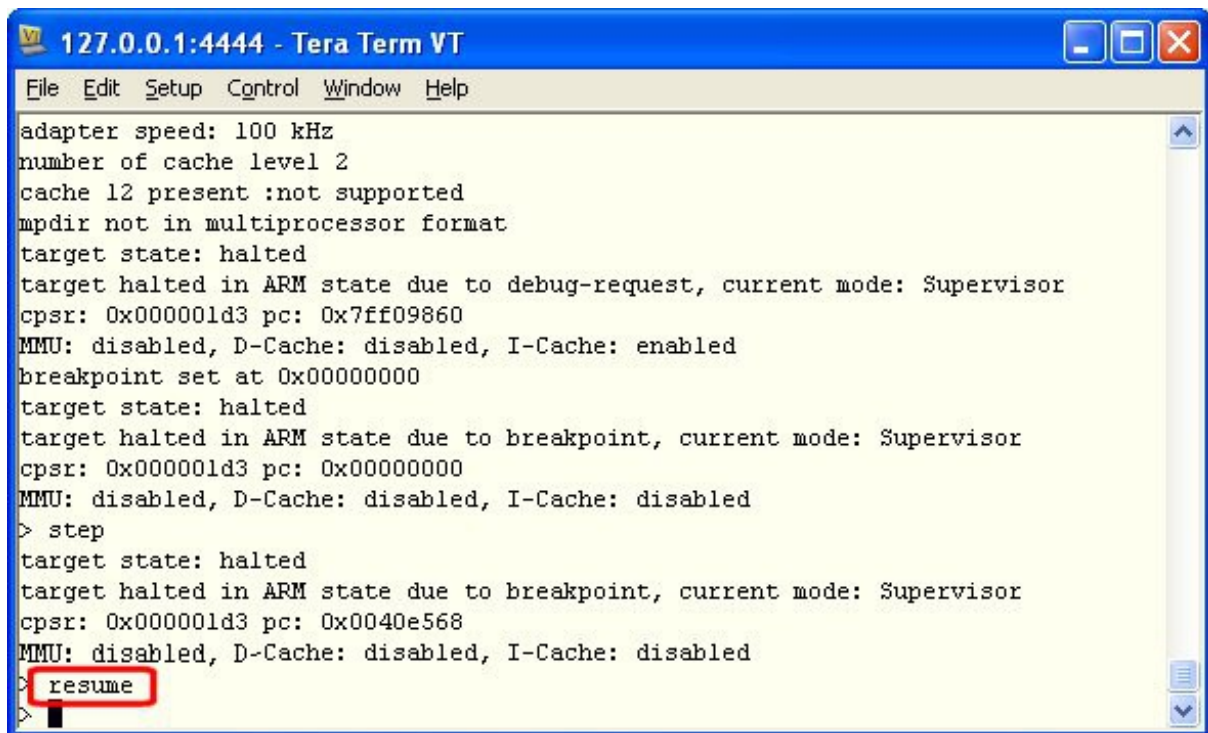
```
127.0.0.1:4444 - Tera Term VT
File Edit Setup Control Window Help
Open On-Chip Debugger
> reset_halt
adapter speed: 100 kHz
number of cache level 2
cache l2 present :not supported
mpdir not in multiprocessor format
target state: halted
target halted in ARM state due to debug-request, current mode: Supervisor
cpsr: 0x000001d3 pc: 0x7ff09860
MMU: disabled, D-Cache: disabled, I-Cache: enabled
breakpoint set at 0x00000000
target state: halted
target halted in ARM state due to breakpoint, current mode: Supervisor
cpsr: 0x000001d3 pc: 0x00000000
MMU: disabled, D-Cache: disabled, I-Cache: disabled
>
```

Type **step** and press [Enter].



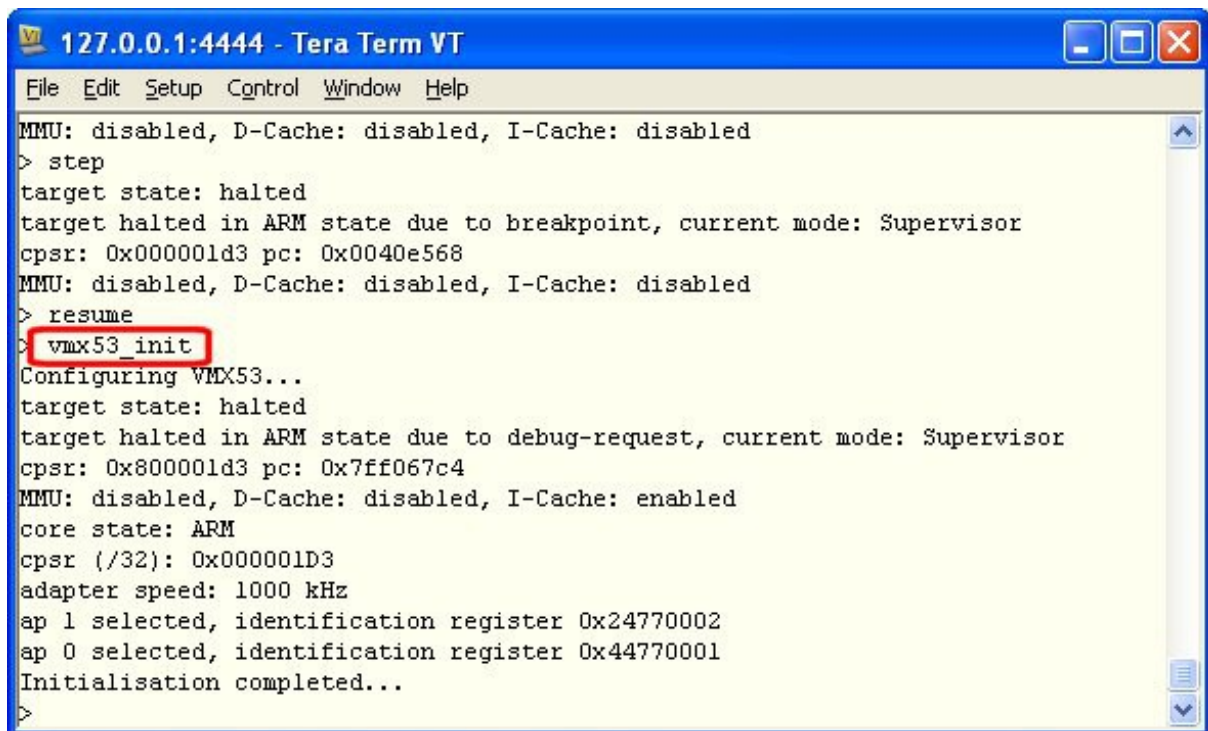
```
127.0.0.1:4444 - Tera Term VT
File Edit Setup Control Window Help
> reset_halt
adapter speed: 100 kHz
number of cache level 2
cache l2 present :not supported
mpdir not in multiprocessor format
target state: halted
target halted in ARM state due to debug-request, current mode: Supervisor
cpsr: 0x000001d3 pc: 0x7ff09860
MMU: disabled, D-Cache: disabled, I-Cache: enabled
breakpoint set at 0x00000000
target state: halted
target halted in ARM state due to breakpoint, current mode: Supervisor
cpsr: 0x000001d3 pc: 0x00000000
MMU: disabled, D-Cache: disabled, I-Cache: disabled
> step
target state: halted
target halted in ARM state due to breakpoint, current mode: Supervisor
cpsr: 0x000001d3 pc: 0x0040e568
MMU: disabled, D-Cache: disabled, I-Cache: disabled
>
```

Type **resume** and press [Enter].



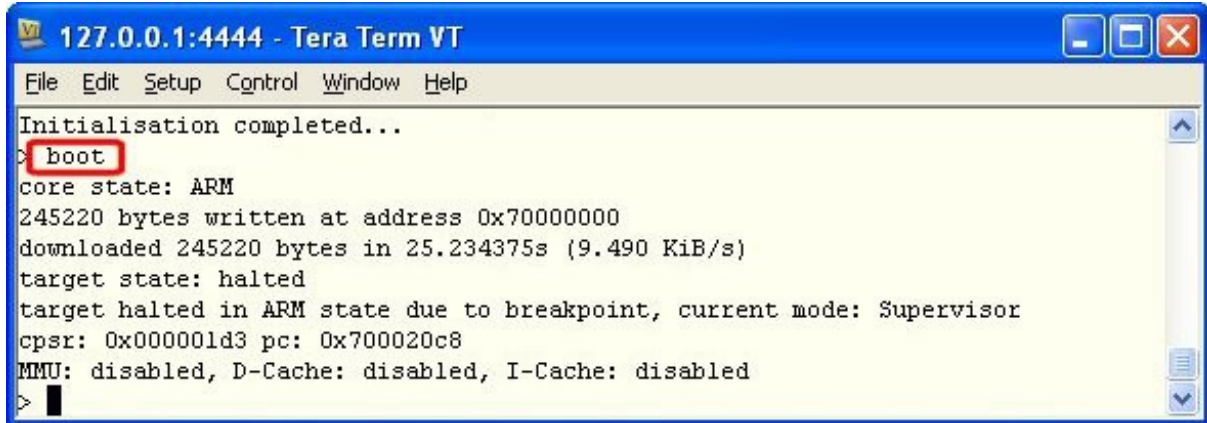
```
127.0.0.1:4444 - Tera Term VT
File Edit Setup Control Window Help
adapter speed: 100 kHz
number of cache level 2
cache l2 present :not supported
mpdir not in multiprocessor format
target state: halted
target halted in ARM state due to debug-request, current mode: Supervisor
cpsr: 0x000001d3 pc: 0x7ff09860
MMU: disabled, D-Cache: disabled, I-Cache: enabled
breakpoint set at 0x00000000
target state: halted
target halted in ARM state due to breakpoint, current mode: Supervisor
cpsr: 0x000001d3 pc: 0x00000000
MMU: disabled, D-Cache: disabled, I-Cache: disabled
> step
target state: halted
target halted in ARM state due to breakpoint, current mode: Supervisor
cpsr: 0x000001d3 pc: 0x0040e568
MMU: disabled, D-Cache: disabled, I-Cache: disabled
> resume
```

Type **vmx53_init** and press [Enter].



```
127.0.0.1:4444 - Tera Term VT
File Edit Setup Control Window Help
MMU: disabled, D-Cache: disabled, I-Cache: disabled
> step
target state: halted
target halted in ARM state due to breakpoint, current mode: Supervisor
cpsr: 0x000001d3 pc: 0x0040e568
MMU: disabled, D-Cache: disabled, I-Cache: disabled
> resume
> vmx53_init
Configuring VMX53...
target state: halted
target halted in ARM state due to debug-request, current mode: Supervisor
cpsr: 0x800001d3 pc: 0x7ff067c4
MMU: disabled, D-Cache: disabled, I-Cache: enabled
core state: ARM
cpsr (/32): 0x000001D3
adapter speed: 1000 kHz
ap 1 selected, identification register 0x24770002
ap 0 selected, identification register 0x44770001
Initialisation completed...
>
```

Type **boot** and press [Enter].



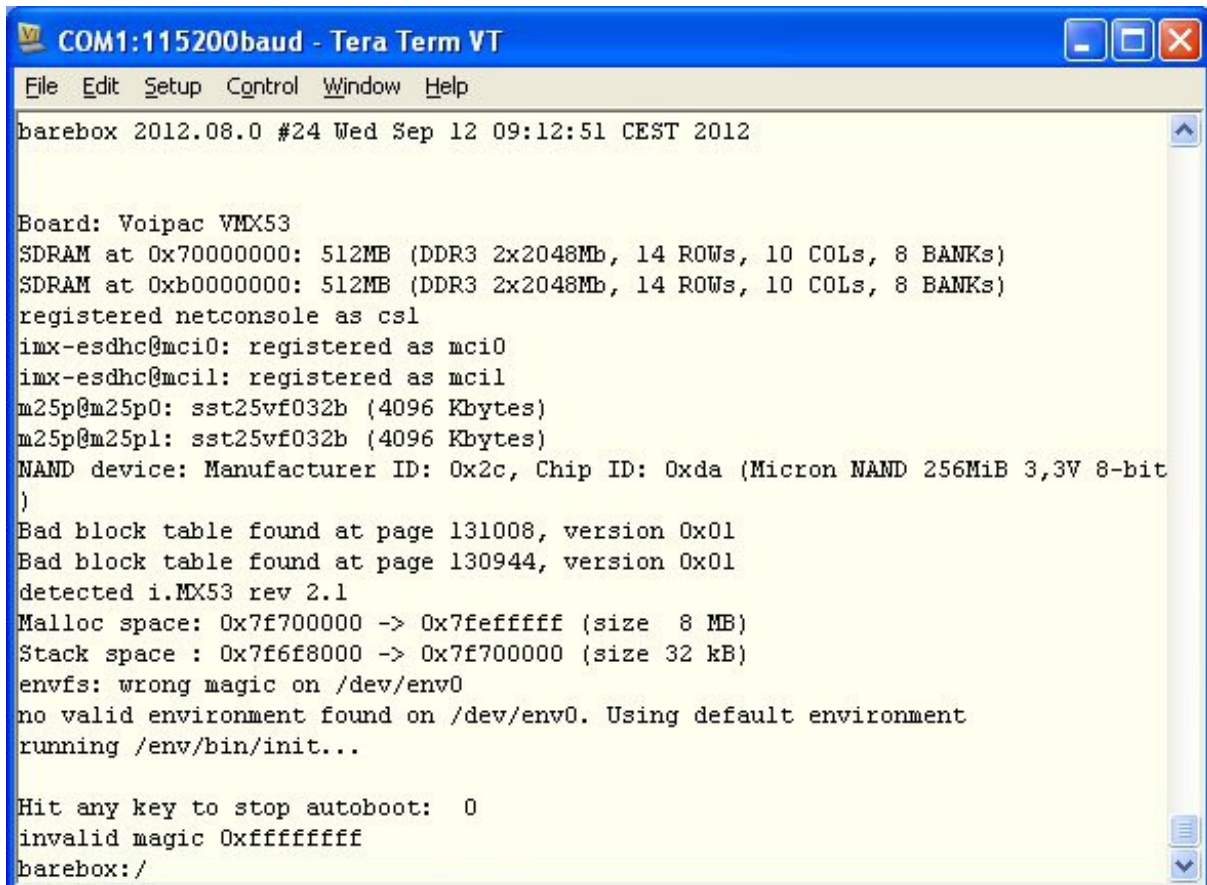
```
127.0.0.1:4444 - Tera Term VT
File Edit Setup Control Window Help
Initialisation completed...
> boot
core state: ARM
245220 bytes written at address 0x70000000
downloaded 245220 bytes in 25.234375s (9.490 KiB/s)
target state: halted
target halted in ARM state due to breakpoint, current mode: Supervisor
cpsr: 0x000001d3 pc: 0x700020c8
MMU: disabled, D-Cache: disabled, I-Cache: disabled
>
```

Barebox is loaded into the i.MX53 module SRAM.



(Note) After "boot" the barebox is being executed.

The previously loaded bootloader (barebox.bin) is running in Serial console.



```
COM1:115200baud - Tera Term VT
File Edit Setup Control Window Help
barebox 2012.08.0 #24 Wed Sep 12 09:12:51 CEST 2012

Board: Voipac VMX53
SDRAM at 0x70000000: 512MB (DDR3 2x2048Mb, 14 ROWs, 10 COLs, 8 BANKs)
SDRAM at 0xb0000000: 512MB (DDR3 2x2048Mb, 14 ROWs, 10 COLs, 8 BANKs)
registered netconsole as csl
imx-esdhc@mci0: registered as mci0
imx-esdhc@mci1: registered as mcil
m25p@m25p0: sst25vf032b (4096 Kbytes)
m25p@m25p1: sst25vf032b (4096 Kbytes)
NAND device: Manufacturer ID: 0x2c, Chip ID: 0xda (Micron NAND 256MiB 3,3V 8-bit
)
Bad block table found at page 131008, version 0x01
Bad block table found at page 130944, version 0x01
detected i.MX53 rev 2.1
Malloc space: 0x7f700000 -> 0x7fefffff (size 8 MB)
Stack space : 0x7f6f8000 -> 0x7f700000 (size 32 kB)
envfs: wrong magic on /dev/env0
no valid environment found on /dev/env0. Using default environment
running /env/bin/init...

Hit any key to stop autoboot: 0
invalid magic 0xffffffff
barebox:/
```



When the module is switched off, barebox is erased. To flash barebox again, it is needed to use the same procedure as shown in Step 10.

OpenOCD must be closed and restarted again to use the same procedure as shown in Step 10.

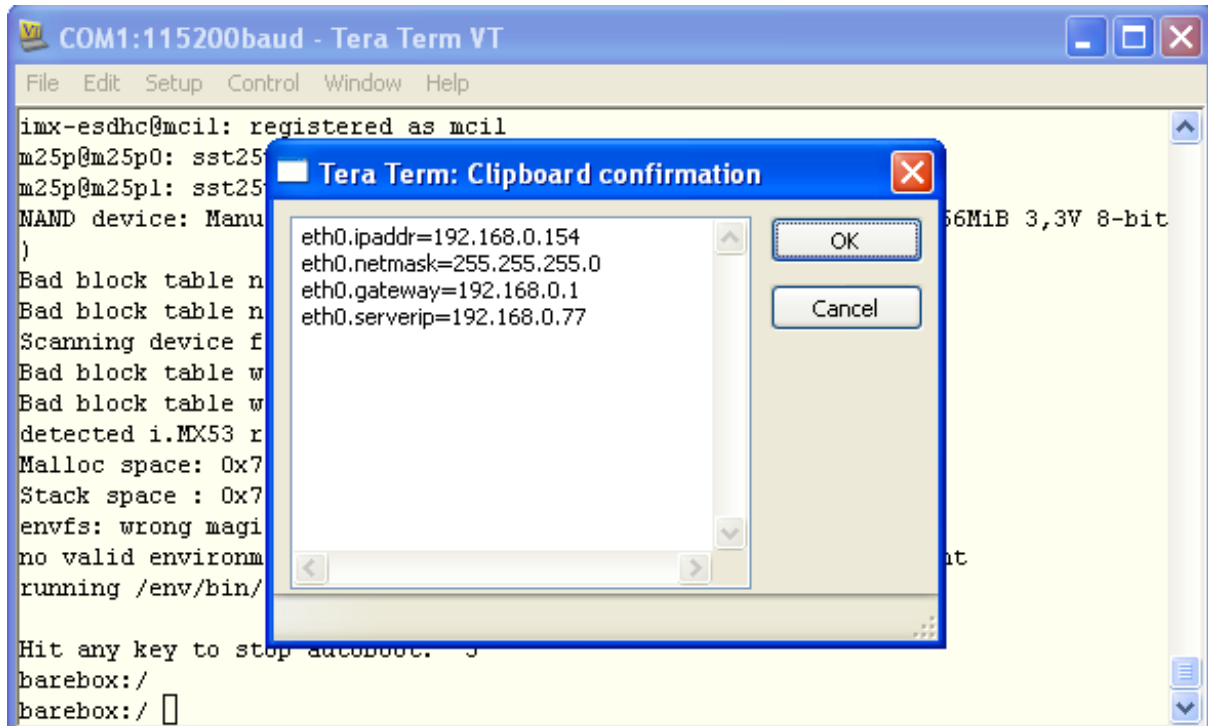
How to flash barebox through the TeraTerm

11
STEP

Run TFTP server. Type or paste commands in Serial console to set Ethernet:

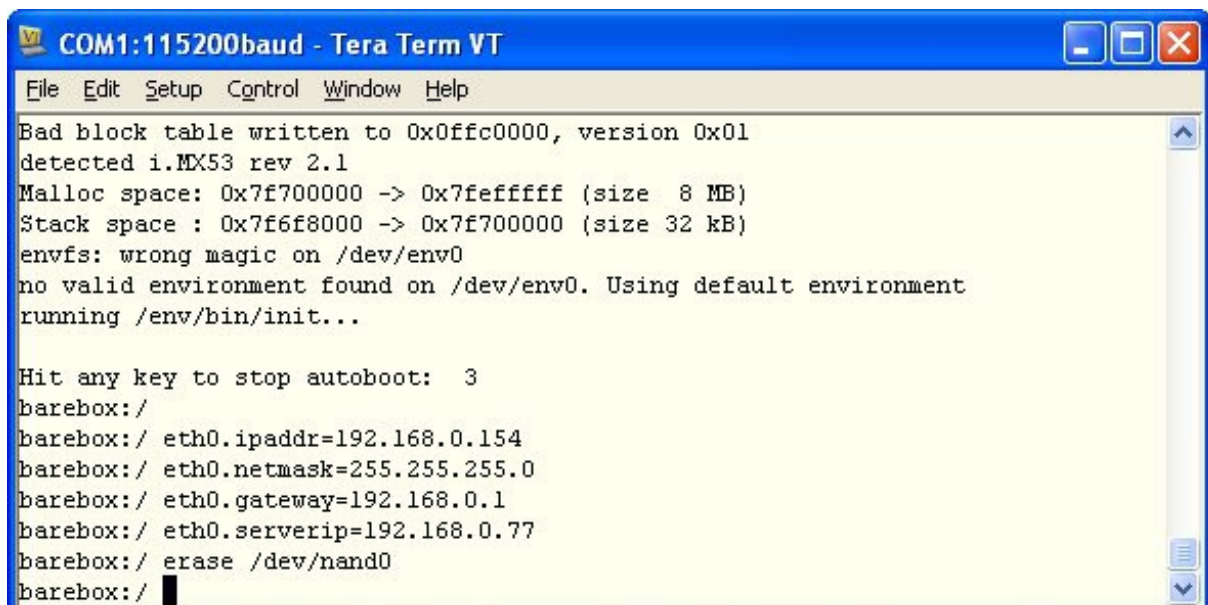
Assign individual IP addresses according to the specifications of your subnet.

```
eth0.ipaddr=192.168.0.150
eth0.netmask=255.255.255.0
eth0.gateway=192.168.0.1
eth0.serverip=192.168.0.77
```



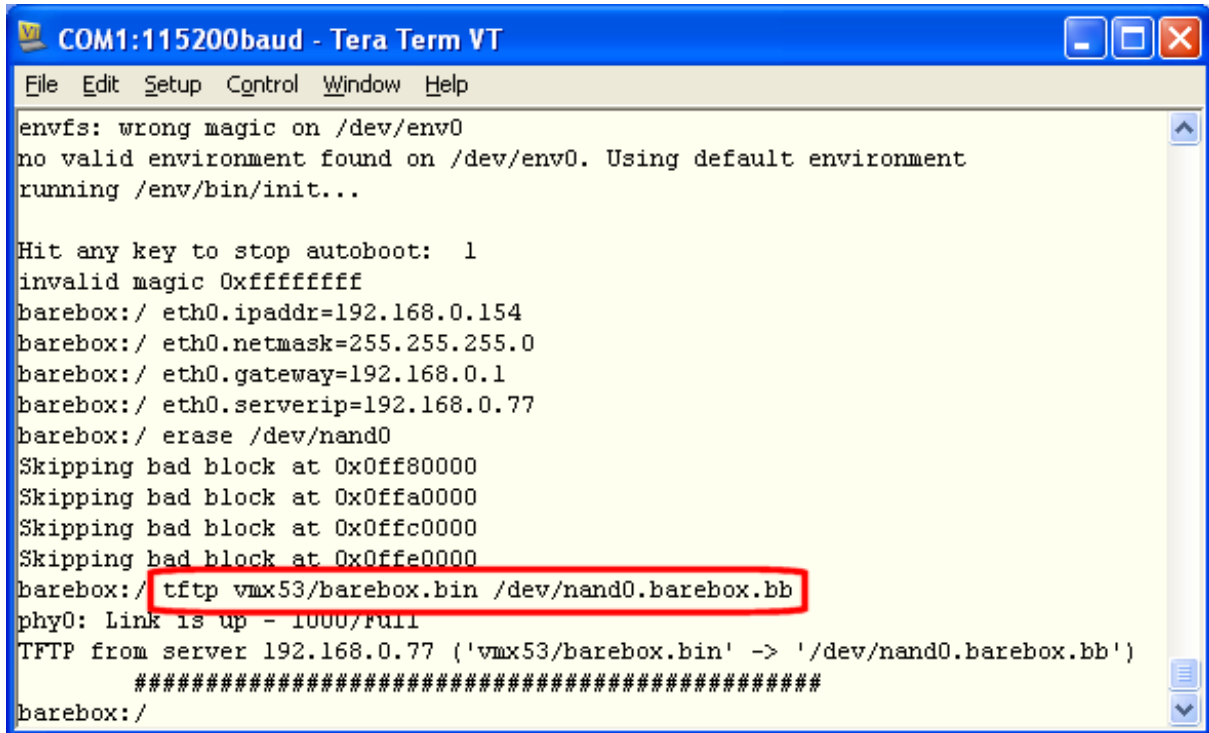
Type or paste commands in Serial console to erase Flash:

erase /dev/nand0



Type or paste command separately in Serial console to load bootloader file barebox.bin:

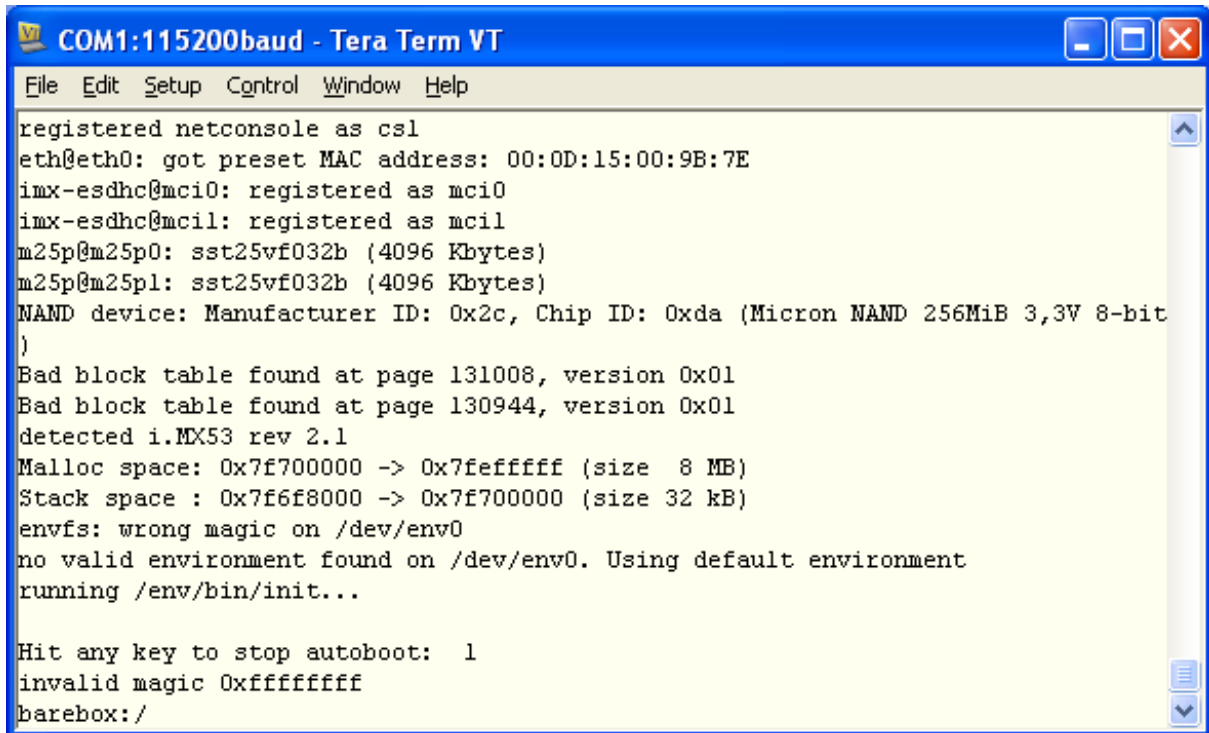
tftp tftp folder/barebox.bin /dev/nand0.barebox.bb



```
COM1:115200baud - Tera Term VT
File Edit Setup Control Window Help
envfs: wrong magic on /dev/env0
no valid environment found on /dev/env0. Using default environment
running /env/bin/init...

Hit any key to stop autoboot: 1
invalid magic 0xffffffff
barebox:/ eth0.ipaddr=192.168.0.154
barebox:/ eth0.netmask=255.255.255.0
barebox:/ eth0.gateway=192.168.0.1
barebox:/ eth0.serverip=192.168.0.77
barebox:/ erase /dev/nand0
Skipping bad block at 0x0ff80000
Skipping bad block at 0x0ffa0000
Skipping bad block at 0x0ffc0000
Skipping bad block at 0x0ffe0000
barebox:/ tftp vmx53/barebox.bin /dev/nand0.barebox.bb
phy0: Link is up - 1000/FULL
TFTP from server 192.168.0.77 ('vmx53/barebox.bin' -> '/dev/nand0.barebox.bb')
#####
barebox:/
```

Final step is to power off the board and disconnect the jtag cable. Change **H902** jumper (BOOTMODE) on the baseboard by connecting pins 2 and 3 together. Power on the board. The module will boot barebox.

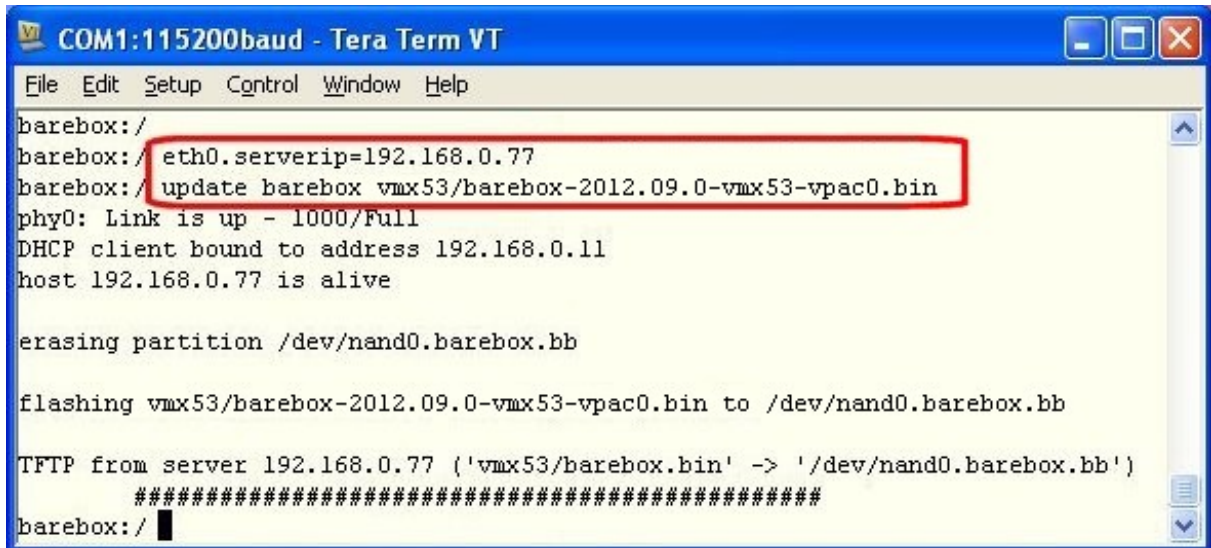


```
COM1:115200baud - Tera Term VT
File Edit Setup Control Window Help
registered netconsole as csl
eth@eth0: got preset MAC address: 00:0D:15:00:9B:7E
imx-esdhc@mci0: registered as mci0
imx-esdhc@mcil: registered as mcil
m25p@m25p0: sst25vf032b (4096 Kbytes)
m25p@m25p1: sst25vf032b (4096 Kbytes)
NAND device: Manufacturer ID: 0x2c, Chip ID: 0xda (Micron NAND 256MiB 3,3V 8-bit
)
Bad block table found at page 131008, version 0x01
Bad block table found at page 130944, version 0x01
detected i.MX53 rev 2.1
Malloc space: 0x7f700000 -> 0x7fefffff (size 8 MB)
Stack space : 0x7f6f8000 -> 0x7f700000 (size 32 kB)
envfs: wrong magic on /dev/env0
no valid environment found on /dev/env0. Using default environment
running /env/bin/init...

Hit any key to stop autoboot: 1
invalid magic 0xffffffff
barebox:/
```

How to flash zImage and rootfs through the TeraTerm

- 12** Type or paste commands into TCP/IP console (Open On-Chip Debugger connection):
STEP
- Type: **eth0.serverip=192.168.0.77** (IP address of FTP in case, no DHCP Next-Server in your subnet)
Type: **update barebox [ftf folder/barebox-2012.09.0-vmx53-vpac0.bin](#)**



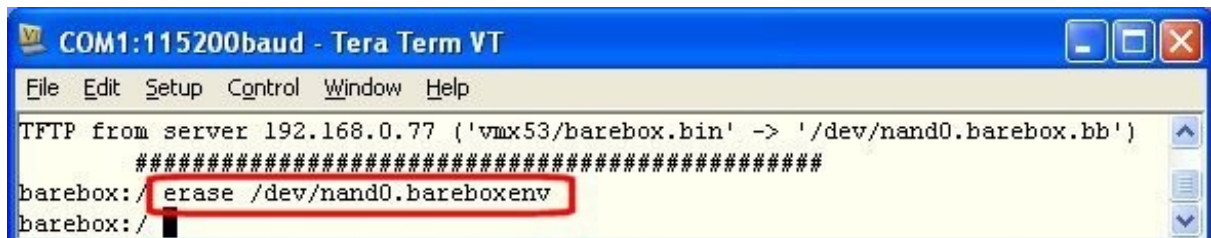
```
COM1:115200baud - Tera Term VT
File Edit Setup Control Window Help
barebox:/
barebox:/ eth0.serverip=192.168.0.77
barebox:/ update barebox vmx53/barebox-2012.09.0-vmx53-vpac0.bin
phy0: Link is up - 1000/Full
DHCP client bound to address 192.168.0.11
host 192.168.0.77 is alive

erasing partition /dev/nand0.barebox.bb

flashing vmx53/barebox-2012.09.0-vmx53-vpac0.bin to /dev/nand0.barebox.bb

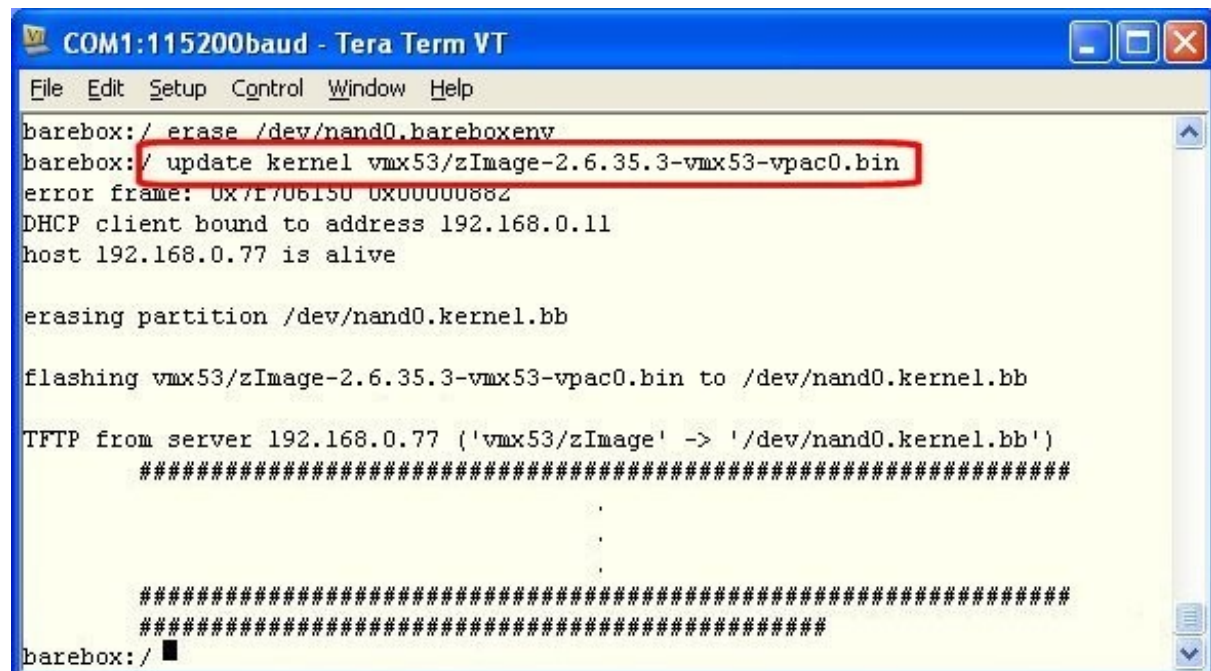
TFTP from server 192.168.0.77 ('vmx53/barebox.bin' -> '/dev/nand0.barebox.bb')
#####
barebox:/
```

Type **erase /dev/nand0.bareboxenv** and reset the board.



```
COM1:115200baud - Tera Term VT
File Edit Setup Control Window Help
TFTP from server 192.168.0.77 ('vmx53/barebox.bin' -> '/dev/nand0.barebox.bb')
#####
barebox:/ erase /dev/nand0.bareboxenv
barebox:/
```

Type **update kernel [ftf folder/zImage-2.6.35.3-vmx53-vpac0.bin](#)**.




```
COM1:115200baud - Tera Term VT
File Edit Setup Control Window Help
barebox:/ erase /dev/nand0.bareboxenv
barebox:/ update kernel vmx53/zImage-2.6.35.3-vmx53-vpac0.bin
error frame: 0X7E706150 0X00000882
DHCP client bound to address 192.168.0.11
host 192.168.0.77 is alive

erasing partition /dev/nand0.kernel.bb

flashing vmx53/zImage-2.6.35.3-vmx53-vpac0.bin to /dev/nand0.kernel.bb

TFTP from server 192.168.0.77 ('vmx53/zImage' -> '/dev/nand0.kernel.bb')
#####
.
.
#####
#####
barebox:/
```

Type `update rootfs` [tftp folder/rootfs-ubifs-bb-1-18-vmx53-vpac0.bin](#).



```
COM1:115200baud - Tera Term VT
File Edit Setup Control Window Help
barebox:/ update rootfs vmx53/rootfs-ubifs-bb-1-18-vmx53-vpac0.bin
error frame: 0x7170e1d8 0x00000002
DHCP client bound to address 192.168.0.11
host 192.168.0.1 is alive

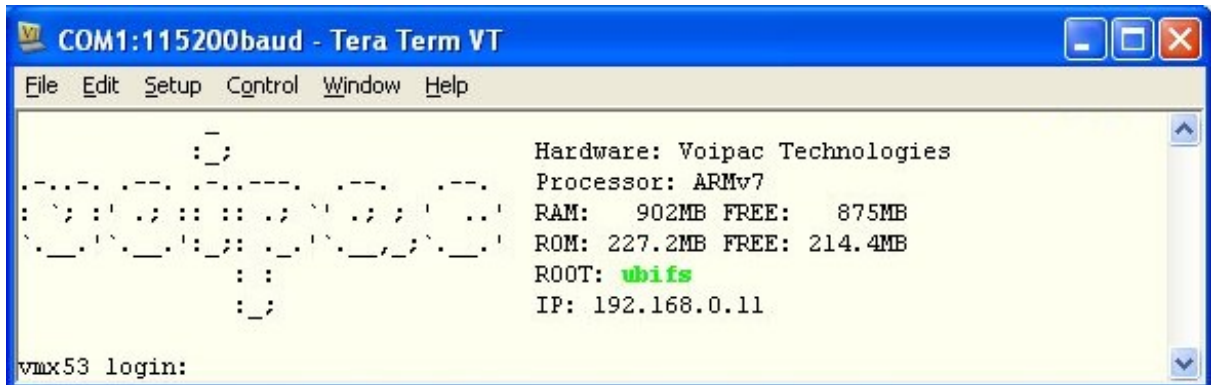
erasing partition /dev/nand0.rootfs

attaching UBI to /dev/nand0.rootfs
UBI: attaching mtd0 to ubi0
UBI: physical eraseblock size: 131072 bytes (128 KiB)
UBI: logical eraseblock size: 129024 bytes
UBI: smallest flash I/O unit: 2048
UBI: sub-page size: 512
UBI: VID header offset: 512 (aligned 512)
UBI: data offset: 2048
UBI: empty MTD device detected
UBI: create volume table (copy #1)
UBI: create volume table (copy #2)
registering /dev/ubi0
UBI: attached mtd0 to ubi0
UBI: MTD device name: "nand0.rootfs"
UBI: MTD device size: 507 MiB
UBI: number of good PEBs: 4052
UBI: number of bad PEBs: 4
UBI: max. allowed volumes: 128
UBI: wear-leveling threshold: 4096
UBI: number of internal volumes: 1
UBI: number of user volumes: 0
UBI: available PEBs: 4008
UBI: total number of reserved PEBs: 44
UBI: number of PEBs reserved for bad PEB handling: 40
UBI: max/mean erase counter: 1/0
registering rootfs as /dev/ubi0.rootfs

flashing vmx53/rootfs-ubifs-bb-1-18-vmx53-vpac0.bin to /dev/ubi0.rootfs

TFTP from server 192.168.0.77('vmx53/rootfs-ubifs-bb-1-18-vmx53-vpac0.bin' -> '/dev/ubi0.rootfs')
#####
:
:
:
#####
#####
barebox:/
```

Type `reset` or reset the board and module will boot Filesystem. Type `vmx53` login "`root`" and press [Enter].



```
COM1:115200baud - Tera Term VT
File Edit Setup Control Window Help
Hardware: Voipac Technologies
Processor: ARMv7
RAM: 902MB FREE: 875MB
ROM: 227.2MB FREE: 214.4MB
ROOT: ubifs
IP: 192.168.0.11
vmx53 login:
```

Important and Practical Information

E-Fuses

Voipac i.MX53 SODIMM Module is delivered with e-fuses set to boot from NAND interface defaultly. Upon a customer request, Voipac offers not programmed modules or modules with different boot device. The options are: NAND Flash, microSD/MMC, SPI Flash, I2C EEPROM.

To be able to put pullups on boot configuration pins you have to lock e-fuses configuration by programming the e-fuses using barebox bootloader.

Before programming e-fuses, it is needed to enable e-fuse supply gate:

```
barebox:/ md 0x53fd4064+4
53fd4064: 0000fe62 b...
barebox:/ mw 0x53fd4064+4 0xfe72
```

To dump factory e-fuses configuration use barebox command

```
barebox:/ md -b -s /dev/imx_iim_bank0
00000000: 10 10 00 00 01 00 00 02 2b 2b 80 00 02 d9 f4 b1 .....++.....
00000010: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....

```

To write e-fuses use barebox command (example writes MAC address 00:01:02:03:04:05)

```
barebox:/ imx_iim0.permanent_write_enable=1
barebox:/ mw -b -d /dev/imx_iim_bank1 9+6 0x00 0x01 0x02 0x03 0x04 0x05
barebox:/ md -b -s /dev/imx_iim_bank1
00000000: 01 00 00 00 00 00 00 00 00 00 01 02 03 04 05 00 .....++.....
00000010: 00 00 00 00 00 00 00 19 00 00 00 00 00 00 00 .....

```

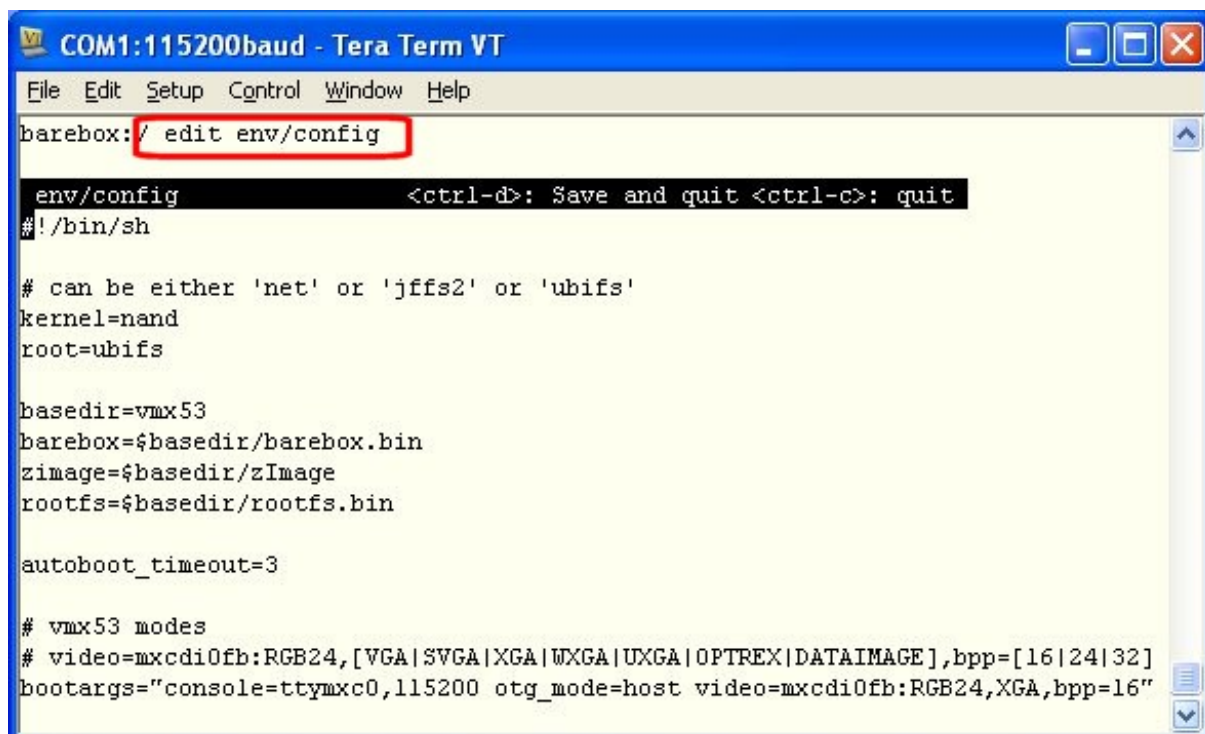


**BE AWARE THAT E-FUSES PROGRAMING IS NON REVERSAL PROCESS !!!
WARRANTY CLAIM CAUSED BY IMPROPER E-FUSES PROGRAMMING WILL
NOT BE ACCEPTED !!!**

Changing MAC Address

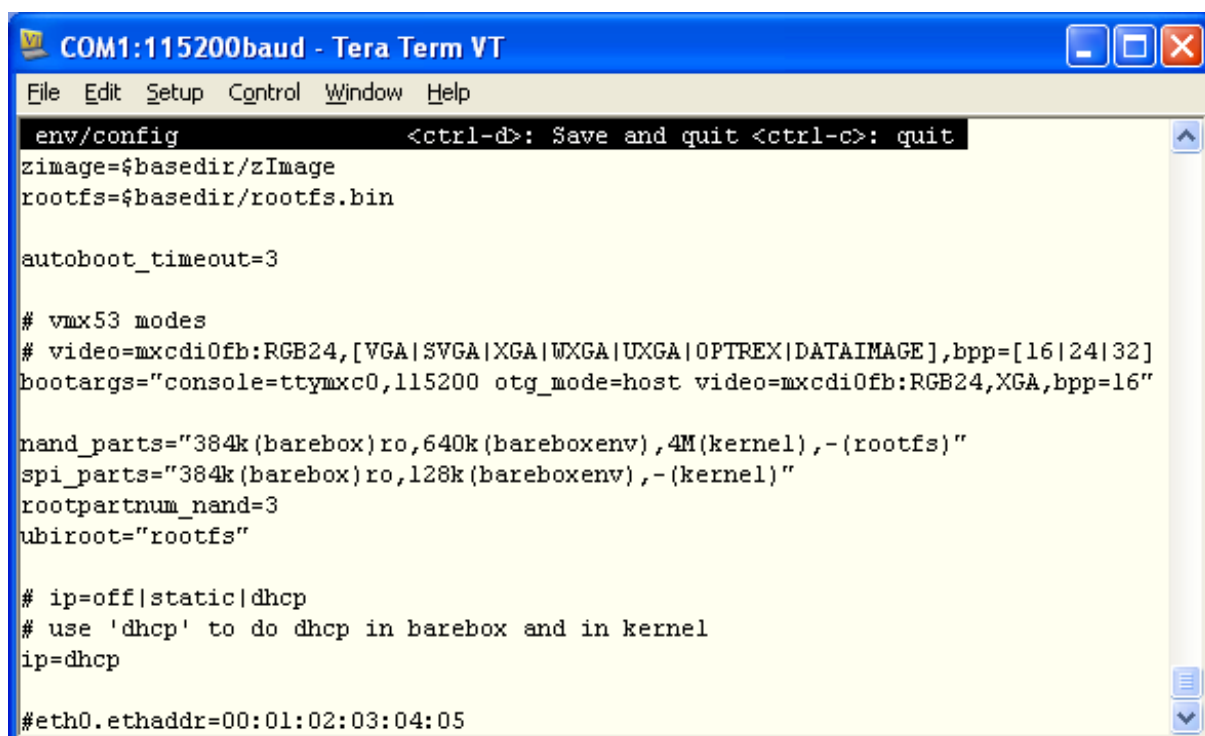
MAC address (indicated on the label of the module) is defaultly written in e-fuses for permanent identifying the module. Customer can change the MAC address using barebox:

Stop autoboot and write: **edit env/config**



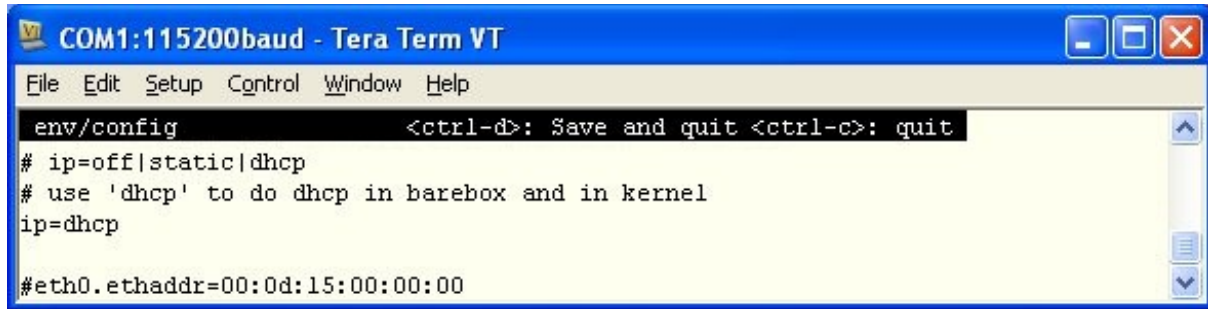
```
COM1:115200baud - Tera Term VT
File Edit Setup Control Window Help
barebox: / edit env/config
env/config <ctrl-d>: Save and quit <ctrl-c>: quit
#!/bin/sh
# can be either 'net' or 'jffs2' or 'ubifs'
kernel=nand
root=ubifs
basedir=vmx53
barebox=${basedir}/barebox.bin
zimage=${basedir}/zImage
rootfs=${basedir}/rootfs.bin
autoboot_timeout=3
# vmx53 modes
# video=mxcdi0fb:RGB24,[VGA|SVGA|XGA|WXGA|UXGA|OPTREX|DATAIMAGE],bpp=[16|24|32]
bootargs="console=ttymx0,115200 otg_mode=host video=mxcdi0fb:RGB24,XGA,bpp=16"
```

Scroll down to a last line for changing the MAC address: 00:01:02:03:04:05



```
COM1:115200baud - Tera Term VT
File Edit Setup Control Window Help
env/config <ctrl-d>: Save and quit <ctrl-c>: quit
zimage=${basedir}/zImage
rootfs=${basedir}/rootfs.bin
autoboot_timeout=3
# vmx53 modes
# video=mxcdi0fb:RGB24,[VGA|SVGA|XGA|WXGA|UXGA|OPTREX|DATAIMAGE],bpp=[16|24|32]
bootargs="console=ttymx0,115200 otg_mode=host video=mxcdi0fb:RGB24,XGA,bpp=16"
nand_parts="384k(barebox)ro,640k(bareboxenv),4M(kernel),-(rootfs)"
spi_parts="384k(barebox)ro,128k(bareboxenv),-(kernel)"
rootpartnum_nand=3
ubiroot="rootfs"
# ip=off|static|dhcp
# use 'dhcp' to do dhcp in barebox and in kernel
ip=dhcp
#eth0.ethaddr=00:01:02:03:04:05
```

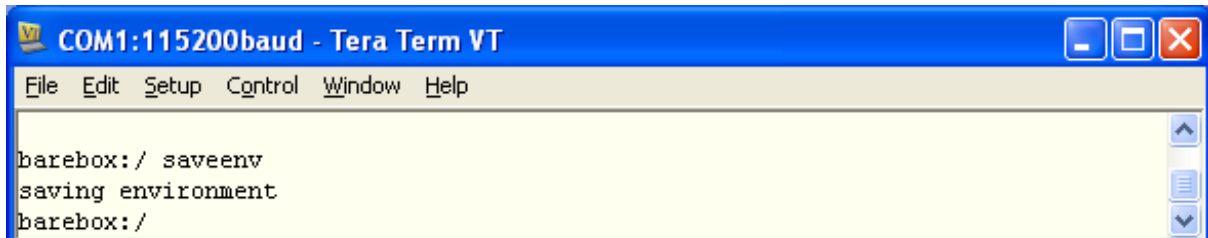
Rewrite the MAC address and and press [CTRL+D]



```
COM1:115200baud - Tera Term VT
File Edit Setup Control Window Help
env/config <ctrl-d>: Save and quit <ctrl-c>: quit
# ip=off|static|dhcp
# use 'dhcp' to do dhcp in barebox and in kernel
ip=dhcp

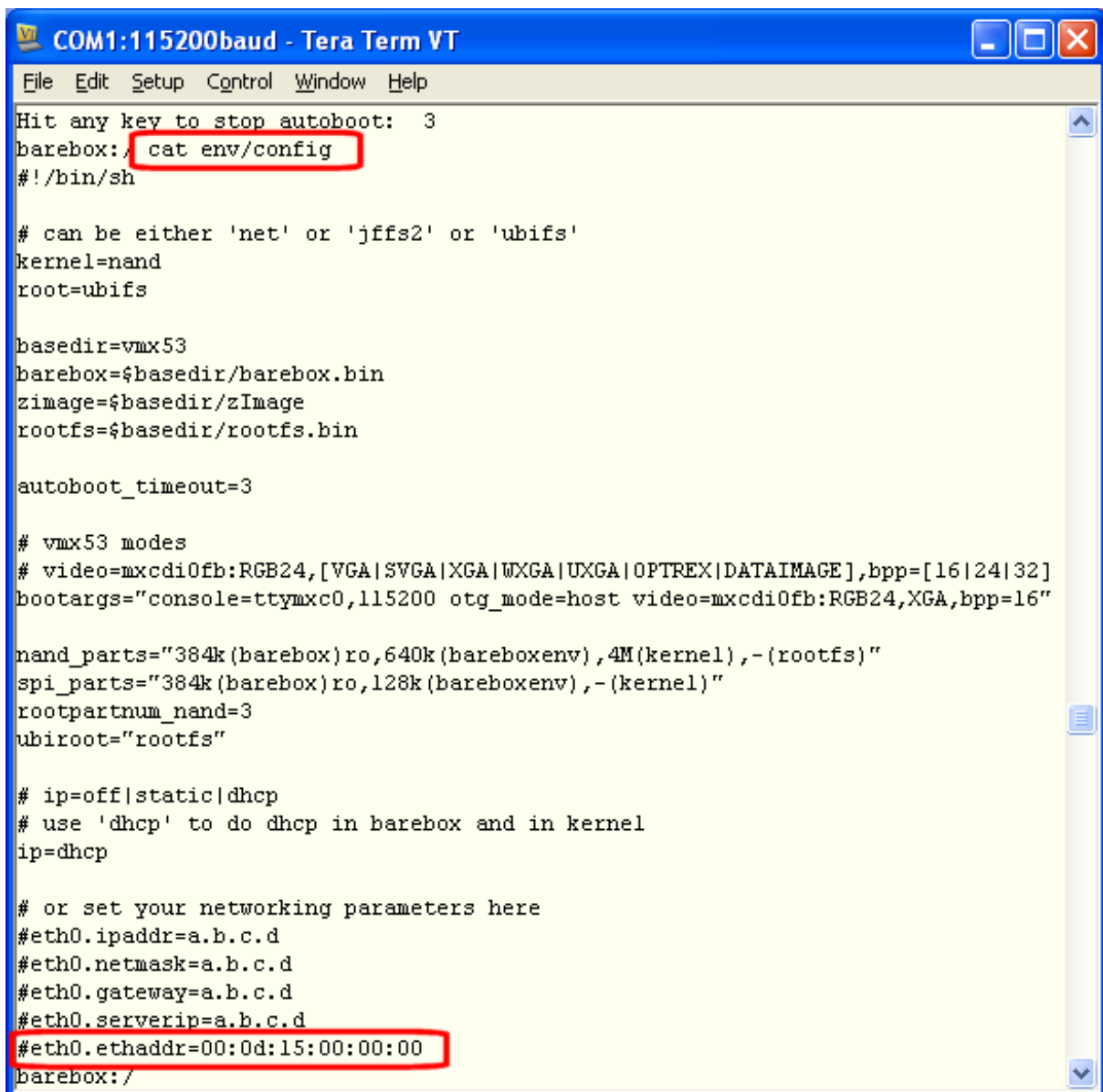
#eth0.ethaddr=00:0d:15:00:00:00
```

Type **saveenv** and press [Enter]



```
COM1:115200baud - Tera Term VT
File Edit Setup Control Window Help
barebox:/ saveenv
saving environment
barebox:/
```

Reset the board, stop autobooting and type: **cat env/config**. Newly specified MAC address is saved.



```
COM1:115200baud - Tera Term VT
File Edit Setup Control Window Help
Hit any key to stop autoboot: 3
barebox:/ cat env/config
#!/bin/sh

# can be either 'net' or 'jffs2' or 'ubifs'
kernel=nand
root=ubifs

basedir=vmx53
barebox=${basedir}/barebox.bin
zimage=${basedir}/zImage
rootfs=${basedir}/rootfs.bin

autoboot_timeout=3

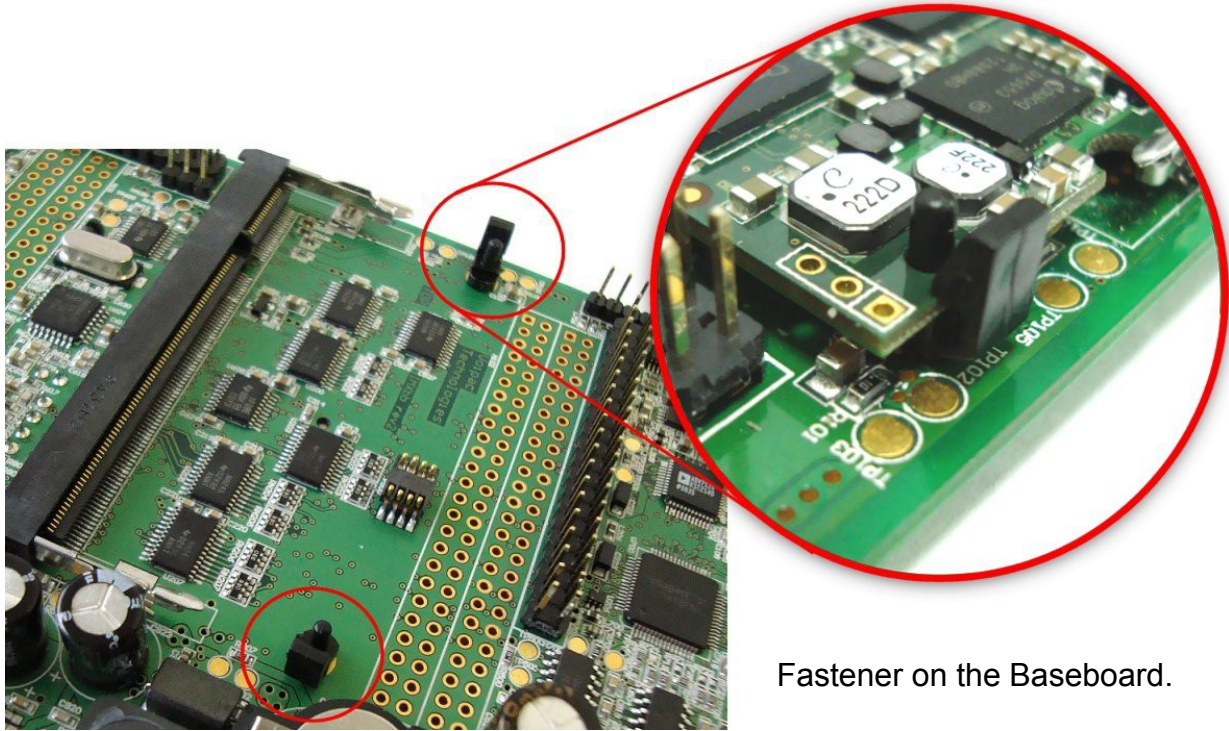
# vmx53 modes
# video=mxcdi0fb:RGB24,[VGA|SVGA|XGA|WXGA|UXGA|OPTREX|DATAIMAGE],bpp=[16|24|32]
bootargs="console=ttymxc0,115200 otg_mode=host video=mxcdi0fb:RGB24,XGA,bpp=16"

nand_parts="384k(barebox)ro,640k(bareboxenv),4M(kernel),-(rootfs)"
spi_parts="384k(barebox)ro,128k(bareboxenv),-(kernel)"
rootpartnum_nand=3
ubiroot="rootfs"

# ip=off|static|dhcp
# use 'dhcp' to do dhcp in barebox and in kernel
ip=dhcp

# or set your networking parameters here
#eth0.ipaddr=a.b.c.d
#eth0.netmask=a.b.c.d
#eth0.gateway=a.b.c.d
#eth0.serverip=a.b.c.d
#eth0.ethaddr=00:0d:15:00:00:00
barebox:/
```

Mounting Fasteners



Fastener on the Baseboard.

Additional protection of the SODIMM Module fall out of the 200pin socket, ideal for mobile applications.

Products` Life Cycle Phase

Voipac products are divided into 4 phases:

- **INTRODUCTION PHASE**, approximately the first 6-12 months.
The last software issues are still being resolved.
Product in this stage is the most suitable for new designs.
- **ACTIVE PHASE**, the first 1-3 years following the product introduction.
Product software packages are stable, additional functions, OS and GUI are being released.
Product in this stage is suitable for new designs.
- **MATURITY PHASE**, approximately the first 4-6 years after the introduction.
Products are shipped in volumes, additional functions additions declines.
Product in this stage is no longer recommended for new designs.
- **EOL PHASE**, approximately 7-10 years after the introduction.
Used components availability decreases, although product may still be purchased under specific circumstances.
The Last Time Buy notification is send to all product users app. 6 months prior to product discontinuation.
Components stocking service for discontinued products and manufacturing of further production batches is available.

To find out the specific product life cycle phase, visit its [product](#) page and check the title color.

CE compliance of Voipac products

The CE label is a mandatory conformity mark for complex electronic devices placed on the market in the European Economic Area and each product sold within the EU needs a CE Certificate of Conformance that ensures that the product conforms to the essential requirements of the applicable EC directives.

However, if such complex electronic devices are produced for further processing by the industry, skilled development teams or system integrators, they do not need to observe the above mentioned CE requirements and consequently do not need any identification either. This applies to the Voipac SODIMM sized Computers On Module, because these are not used as stand-alone devices by the general public.

Anyway, to make sure that Voipac COMs can be used in CE marked devices, they are designed to obey the EC directives and the standard configuration SBCs manufactured by Voipac are tested for Electromagnetic Interference and operating temperature ranges plugged in corresponding Base Board and mounted in the standard Aluminium case provided to Voipac development kits.

Please visit [Downloads](#) for the testing reports.

TECHNICAL SUPPORT

HW & SW support: support@voipac.com

Warranty claims: warranty.claim@voipac.com

Voipac I.MX53/51/25 development kits come with prepaid 1 month support packages.

All of the relevant communication between the customer and Voipac should be executed via e-mails preferably.

Response time is up to 48 hours, except state holidays and weekends.

Voipac working hours are: 8:00 - 17:00, Monday - Friday.

Before contacting support, please read the following for the basic information about how to work with a development kit:

www.voipac.com/#Downloads

<http://free-electrons.com/training>

Besides the free-of-charge support, we provide support for your new designs when it comes to the special drivers for the peripherals not included in the Voipac development kits, design of your own base boards, prototyping, or even new products development.

Please contact: support@voipac.com for more info.

Warranty:

VOIPAC TECHNOLOGIES s.r.o. Does Not Bear Responsibility for the Following:

- Failure of a product resulting from misuse, accident, modification, unsuitable operating environment, or improper maintenance by user
- Unless otherwise agreed in written, a product does not include technical support and the customer may be able to purchase technical support under separate agreement
- Any technical or other support provided under warranty by VOIPAC TECHNOLOGIES s.r.o. such as assistance, set-up and installation is provided WITHOUT WARRANTY OF ANY KIND.

Disclaimer:

VOIPAC TECHNOLOGIES s.r.o. reserves the right to make changes, without notice, to any product, including circuits and/or software described or contained in this datasheet. VOIPAC TECHNOLOGIES s.r.o. assumes no responsibility or liability for the use of the described product(s), conveys no license or title under any patent, copyright, or mask work rights to these products, and makes no representations or warranties that these products are free from patent, copyright, or mask work right infringement, unless otherwise specified.

Trademark Acknowledgment:

Brand and product names are trademarks or registered trademarks of their respective owners.

voipac

