

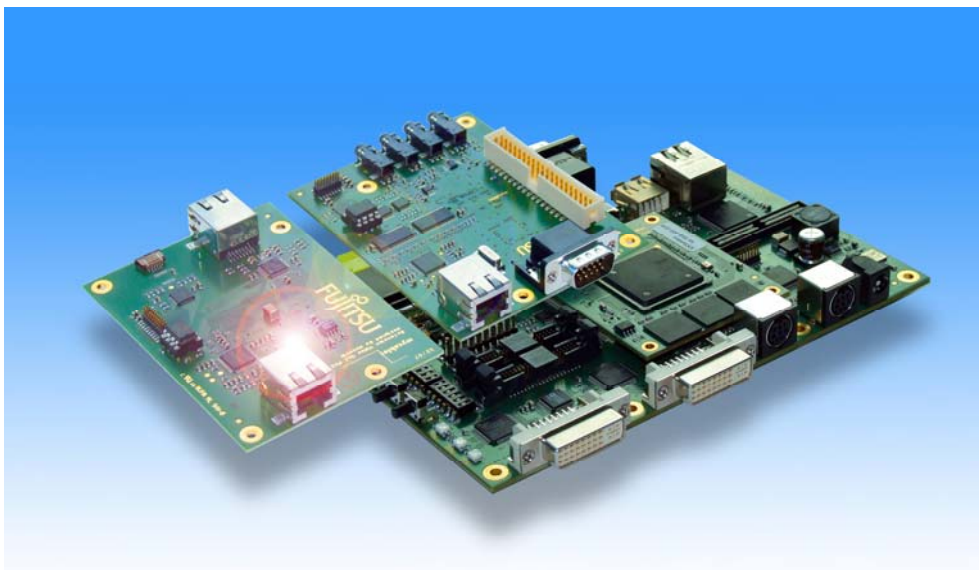
MB86R01 'Jade'



Evaluation Board / Starterkit Demo Quickstart Rev. 1.30

July 2008

1.30



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Document Revision History

Revision Number	Date	Description of changes
1.00	09.10.2007	Preliminary
1.10	23.11.2007	Update for Jade-Tara System
1.20	13.03.2008	Modified go address for new splash.bin
1.30	18.07.2008	Exchanged boot image and added boot stop information

CONTENTS

Warranty and Disclaimer.....2

1 Overview.....5

2 Requirements5

3 Starting the Demo.....6

4 Linux boot configuration.....9

5 Howto run the linux robot demo application.....9

6 Troubleshooting10

7 Worldwide Headquarters and Disclaimer.....11

1 Overview

The MB86R01 'Jade' Evaluation Board / Starterkit demo shows a Fujitsu-logo. The demo can be run using on-board components that are common to both the 'Jade Evaluation Board' and the 'Jade Starterkit' so the application will run on either hardware.

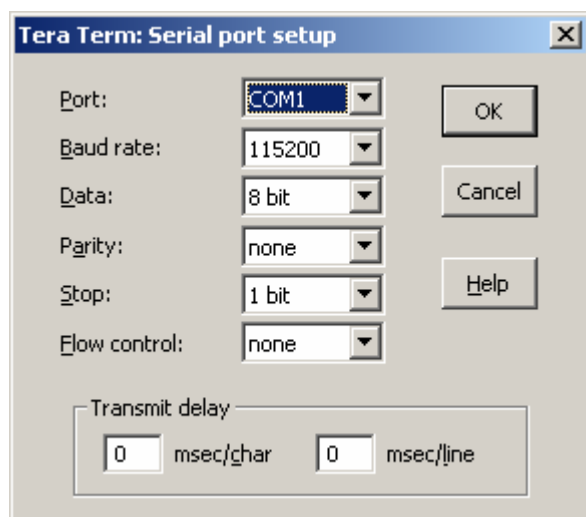
2 Requirements

The following requirements exist to be able to run the Jade demo:

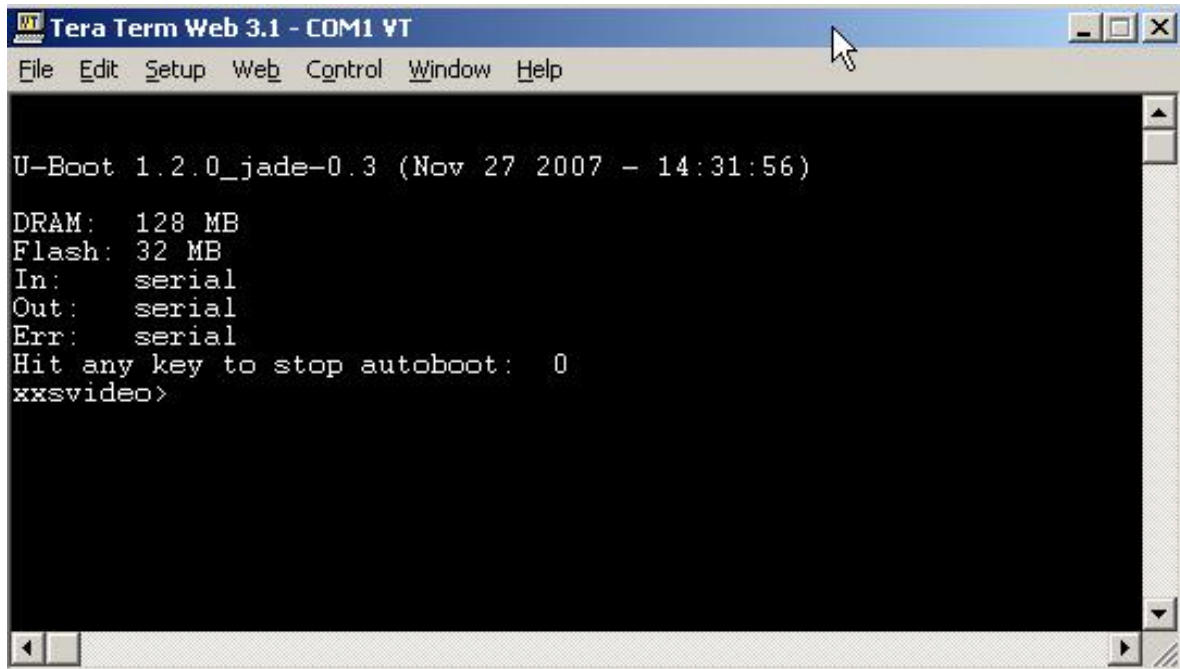
- ❑ A PC with:
 - a free COM port and RS232 cable
 - a free ethernet (network) connection
 - a terminal program (e.g. Tera Term Pro, which is available as freeware in the Internet)
 - a TFTP server installation (available as freeware in the Internet)
- ❑ A switch or hub
- ❑ The Jade Evaluation Board (base board and XXS Video board) or the Jade Starterkit (XXS Terminal and XXS Video board)
- ❑ Demo software
- ❑ Monitor
- ❑ Network cables, VGA or DVI cables

3 Starting the Demo

1. Ensure your power supply has the correct voltage and polarity for the Jade Evaluation Board/Starterkit. Do not connect the power supply to the Jade Evaluation Board/Starterkit yet.
2. Connect the Jade Evaluation Board/Starterkit to the PC using an RS-232 cable and a free COM port (serial interface) on the PC.
3. Connect the PC to the switch using a network cable.
4. Connect the Jade Evaluation Board/Starterkit to the switch using a network cable.
5. Connect the monitor to the Jade Evaluation Board/Starterkit with a VGA or DVI cable.
6. Start the TFTP server software on the PC and configure it to use a directory of your choice (e.g. C:\Jadedemo)
7. Configure the TFTP server settings so that the timeout values are not too strict (e.g. 30 seconds timeout)
8. Start the terminal software on the PC and configure it as shown below:



9. Connect the power supply to the Jade Evaluation Board/Starterkit. The LEDs on the board will illuminate and the terminal software window (console) should be updated by the Jade Evaluation Board/Starterkit firmware. It should show a screen similar to the one shown below.
You can hit any key to stop the autoboot of Linux!

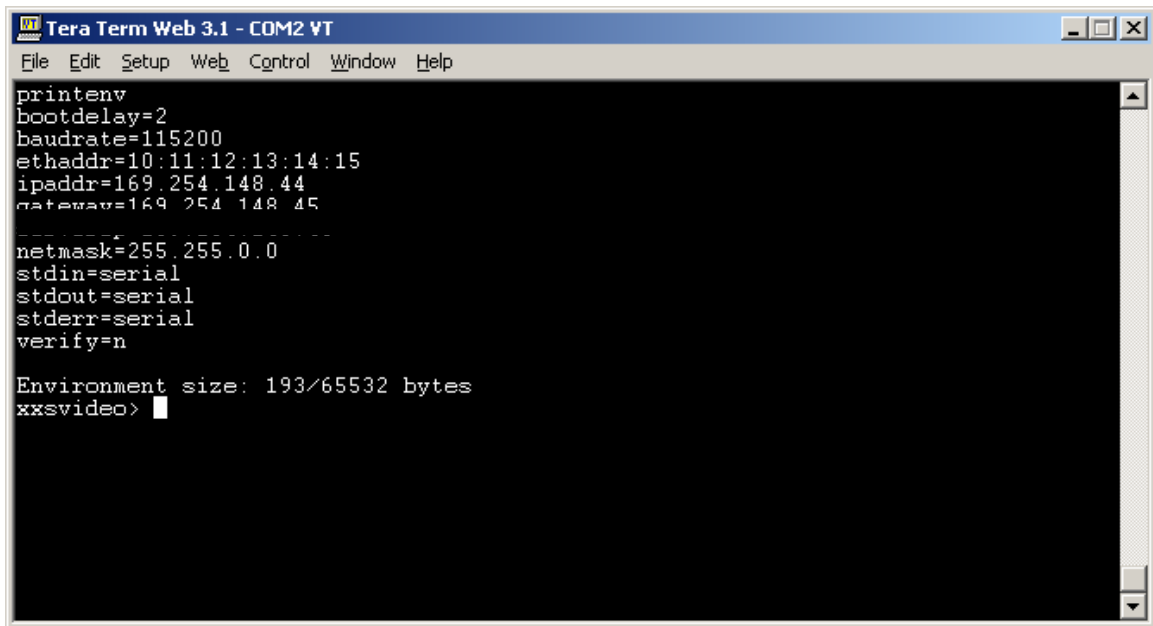


10. Type 'printenv' to see the complete current environment (setup).
11. Check your TFTP server setup (IP address) and if modify your ethernet connection to the Jade Evaluation Board/Starterkit by changing the **environment variables** as indicated below:

```
setenv gatewayip 169.254.148.45
setenv serverip 169.254.148.45
setenv ipaddr 169.254.148.44
setenv netmask 255.255.0.0
```

Note: gatewayip and serverip are the IP address of the TFTP server. Change the ipaddr environment variable so that the Jade Evaluation Board/Starterkit is reachable to the TFTP server.

12. Your final configuration should be similar to that shown below:



```
Tera Term Web 3.1 - COM2 VT
File Edit Setup Web Control Window Help
printenv
bootdelay=2
baudrate=115200
ethaddr=10:11:12:13:14:15
ipaddr=169.254.148.44
gateway=169.254.148.45
-----
netmask=255.255.0.0
stdin=serial
stdout=serial
stderr=serial
verify=n

Environment size: 193/65532 bytes
xxsvideo> █
```

13. Check the ethernet connection between the hardware by pinging the IP address of the TFTP server. Enter `ping <IP address of TFTP server>`. If everything is OK, the console will display a message such as 'Board is alive'
14. Downloading the demo software:
 - a. copy the file `splash.bin` to the directory on your PC that is exported by your TFTP server.
 - b. Download the demo to the Jade Evaluation Board by typing:
`tftp 0x44000000 splash.bin`
15. Run the demo by typing
`go 0x44009268`

4 Linux boot configuration

To develop linux applications we need to add some more environment variables. To boot the kernel enter the kernel-image-filename as bootfile e.g.

```
setenv bootfile ulmage-xxsvideo-jadeevalkit-0.6.bin
```

The kernel will boot after entering the commands:

```
tftp 42000000 $(bootfile);bootm
```

To pass parameters to the kernel define the environment variable bootargs. During development you will use an nfs-mounted filesystem. Make sure to export the filesystem on your development-machine first.

```
root=/dev/nfs rw  
nfsroot=169.254.148.45:/home/user/elpa/jade_rootfs_build-0.6/rootfs-final/
```

Note that the ip entered behind nfsroot is your nfs-server and the path is the exported path of the installed MyCable development toolchain.

The ip-parameter is used to configure the ethernet-port of the target.

```
ip=169.254.148.42:169.254.148.45:169.254.148.45:255.255.0.0:jade:eth0:off
```

The first ip address is the one for the target, the other two define the server- and gateway-ip followed by the netmask of the network, the hostname and ethernet-device.

Finally we setup the debug terminal parameters

```
console=ttyS1,115200n8
```

and configure the kernel to use 96 megabytes ram from 128. The rest is reserved to be used by the graphic display controller

```
mem=96m
```

The setenv-command should look similar to the one below:

```
setenv bootargs root=/dev/nfs rw nfsroot=169.254.148.45:/home/user/elpa/jade_rootfs_build-0.6/rootfs-final/ ip=169.254.148.42:169.254.148.45:169.254.148.45:255.255.0.0:jade:eth0:off  
console=ttyS1,115200n8 mem=96m
```

Use 'saveenv' to save the environment to flash.

5 Howto run the linux robot demo application

Start the linux system. Login as user 'root', no password is needed. Create device-nodes for the i2c-busses by typing 'modprobe i2c-dev'. Run the demo application by typing '/home/robot'

6 Troubleshooting

If the connection between the PC and Jade Evaluation Board/Starterkit refuses to work, use the command 'printenv' on the serial console to check the current configuration once more. If the bootargs and bootfile environment variables are listed, showing different IP addresses, delete these variables using 'setenv bootargs' and 'setenv bootfile' before retrying.

If T T T etc is displayed on the console during file upload, the connection is timing out. Increase the timeout settings of your TFTP server software and recheck the physical ethernet connections.

7 Worldwide Headquarters and Disclaimer

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