kontron

README to Fedora 13 Installation DVD for B3001 BSP supported Boards

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Contents

1 Redhat Fedora 13 Image

1.1 General information

This document describes the Kontron Installation Image DVD for B3001 BSP supported boards. The purpose of this DVD is to install a Fedora Core 13 Linux (64 bit) image to the hard disk or MMSATA-Drive.

1.2 Important information

1.2.1 AHCI mode for SATA drives

When installing the image on a SATA drive it has to be assured that the controller runs in AHCI mode. Otherwise the installation will fail!

This can be checked using the "kboardconfig" command in the EFI shell.

To change the mode enter

```
# kboardconfig SataMode ahci
```

at the EFI shell prompt.

1.2.2 Bootloader peculiarity in headless systems

By default the Grub bootloader is configured to boot automatically to the appropriate mode for headless systems after some seconds. Normally Grub won't be displayed on the serial console, but on headless systems it is possible, that the Grub-Menu is displayed anyway with a scrambled output. In this case please be patient and wait for the system to boot.

1.3 Overview

Base system:

```
Version:        RedHat Fedora 13 Linux
Kernel:         2.6.34.7-56.fc13.x86\_64
libc:           /lib64/libc-2.12.1.so
gcc:            gcc (GCC) 4.4.4 20100630 (Red Hat 4.4.4-10)
```

Additional features:

- Kontron driver package (kontron-b3001-drv-0201-r2)
- Kontron libs (kontron-b3001-lib-0201-r2)
- Kontron demo applications (kontron-b3001-apps-0201-r2)
- Headless support
- X Server (Version 1.8.2)
- Gnome graphical desktop with autologin
- Ethernet driver

1.4 Further properties

1.4.1 Preconfigured Users

There are two users applied in the system:

- Username: b3001, Password: rootroot
- Username: root, Password: rootroot

It is possible and recommended to change the passwords after the first booting with help

of the utility "passwd".

1.4.2 Grub bootloader configuration

Grub bootloader is configured for three boot options:

- by default it boots automatical after 5s to runlevel 3 with output to vga and serial console
- second option is to boot to runlevel 5 with gnome desktop and redirection of the console output to serial port
- third option is to boot to runlevel 5 with gnome desktop and normal console output on vga port

Default boot option can be changed by setting the "default= " parameter to the desired value in "/boot/grub/grub.conf" file.

1.4.3 Ethernet configuration

All GBe Interfaces are configured getting the address and network configuration using DHCP.

1.4.4 Date and Clock Issues

The clock setting of the image is: UTC, german timezone (Berlin).

Please be aware of the fact, that if board is operated battery-less, date and clock gets lost after power-cycling. Because an invalid system time can cause various problems, especially when compiling sources, please use the OS or BIOS provided facilities to ensure a correct system time.

1.4.5 SELinux

SELinux is disabled on image

1.4.6 Firewall

Firewall is disabled on image

1.5 Headless operation support

The Fedora Image gives the capability for headless operation.

1.5.1 Standard settings for serial port

The standard settings for accessing BIOS, Image installation and accessing the running system are:

- Communication: 115200, 8N1
- Terminal-Emulation: ANSI

Connection can be established using a standard terminal program.

1.5.2 Remote access to BIOS

Remote access to BIOS via serial connection is normally possible with the above mentioned default settings. They can be changed in BIOS entering the "Serial Port Redirection" menu. Please check these settings if connection fails.

1.5.3 Image installation via remote connection

Image Installation also can be executed remotely using a serial connection with the default settings for the serial port.

1.5.4 Remote access to installed Image

1.5.4.1 Grub bootloader Grub bootloader is configured to boot with the optimal settings for headless operation. Please refer to the above mentioned chapter "Grub bootloader configuration".

1.5.4.2 Accessing via terminal program The serial port can be used to get console outputs of BIOS and OS. Therefore a terminal program has to be connected with the above mentioned parameters.

1.5.4.3 Accessing via SSH SSH Daemon is running and can be accessed by the appropriate programs when LAN connection is established.

1.5.4.4 Accessing graphical desktop via VNC The Image supplies a graphical desktop using the GNOME window manager. The login is done automatically with the user "b3001". It can be accessed by LAN with standard VNC clients. This option is just usable on systems with display port.

1.6 Installation

1.6.1 Preconditions for a successful Installation

- For every Installation, either on hard disk or on flash, it is necessary to guarantee that the target device is the first one recognized by the loaded installation linux from the DVD. That means, it must be the device "/dev/sda"! This is normally guaranteed, if the target disk (either harddisk or flash) is the only one in the system.
- However, if this is not the case, there is still a possibility for installation, but that requires a deeper knowledge of linux and will be described in the next chapter.

1.6.2 Installation Guide "Step by Step"

- Connect an external USB DVD-ROM to the board.
- Insert the Kontron Installation DVD and start the board.
- Now a minimal Live Linux from the DVD is starting and is trying to detect all devices and then starts automatically the installation script.

```
                    Kontron Modular Computers GmbH

                        Linux Installation Tool


 for: FEDORA13_V.B3001 (ISO-Release: 12)


 DO NOT TURN OFF THE POWER DURING UPDATE APPLICATIONS OPERATING


 Press ENTER to proceed
```

- Continue by using the "Enter" key
- The Kontron DVD Installation Menu will come up

```
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Kontron DVD Menu
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 g) install Linux on Hard disk

 u) create firmware update USB stick
 h) additional help
 s) drop to shell (For experts only!)

 q) quit (The system will be rebooted!)

 Choose an option: g
```

- Choose the option to install the linux image by entering "g" followed by the "Enter"-key
- Now appears the last question, whether you really want to install the image, which means that all previous data on /dev/sda will be overwritten! Confirm with "y" or quit the installation process with "n".

```
Installation will be done on flash disk

################################################################################

WARNING:

If you continue the installation all data on /dev/sda will be lost!
Do you want to continue? [y/N]

################################################################################
```

- If "y" was chosen, then the installation will begin. It takes a while and after some minutes, the installation will complete with the message "Program finished successfully".
- The Kontron DVD menu will appear again, where you can retry the installation in case of any error message or quit the installation by typing "q".
- After a reboot, the now installed Red Hat Fedora 13 Linux shall boot up.

1.7 Changing The Installation Parameters

Note:

This chapter describes, how it is possible to change some installation parameters in order to be able to install the images to other block devices than /dev/sda. However, this needs some practical linux knowledge and should only be performed, if the user understands, what he is doing.
Please be aware, that Kontron cannot be made responsible because of a loss of data on an installed hardisk, which was overwritten due to a wrong installation parameter.

1.7.1 Example Scenario: AM4020 with an installed hard disk and an installed flash

- Installing the image to the flash will not work as expected, as the hard disk will be detected as "/dev/sda" and the flash as "/dev/sdb". Even worse, it will overwrite all the contents of the hardisk while the flash stays unattended. This happens, because the preconditions are not as they are expected (see chapter "Preconditions For A Successful Installation").
- However, there is a solution to avoid unmounting the hard disk from the AM4020 to be able to install an image to the flash. A preceding step of the installation script before installing the image is to look for a file "/data/config" in the ramdisk.
- For creating such a file, it is necessary to drop to the bash shell, which can be obtained by typing "s" in the Kontron DVD Menu.
- As the rootfs is already mounted at the ramdisk, it is easy to create the file "/data/config"

```
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Kontron DVD Menu
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 g) install Linux with Install Script

 u) create firmware update USB stick
 h) additional help
 s) drop to shell (For experts only!)

 q) quit (The system will be rebooted!)

 Choose an option: s

Starting shell... Type 'exit' or press ^d to return to this menu.
bash-3.00# mkdir /data
bash-3.00# vi /data/config
```

- The file /data/config only needs one line of code, which can be entered by the vi editor.

```
LINUX_CONFIG_DEVICE=/dev/sdb
```

- Save this file with vi and then return back to the Kontron DVD menu by entering "exit" on the command line.

```
bash-3.00# exit
```

- Now continue to install the image as being described in the chapter "Installation Guide Step by Step" and watch carefully to the messages and verify, whether the installation device is really the one you desired.