A-EON TECHNOLOGY

Installing Linux on the A1222 (Tabor)

Version 0.9.4 November 2015 (based on the AmigaONE X1000 Debian Squeeze Installation Guide v2.5.1.4)

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Installing Lubuntu 12.04.5 LTS

Quote Wikipedia:

Lubuntu (/lʊˈbʊntuː/ *loo-**buun**-too*) is a lightweight Linux operating system based on Ubuntu but using the LXDE desktop environment in place of Ubuntu's Unity shell and GNOME desktop. LXDE is touted as being "lighter, less resource hungry and more energy-efficient".[1][2][3][4][5]

Like Xubuntu, Lubuntu is intended to be a low-system-requirement, low-RAM environment for netbooks, mobile devices, and older PCs. Tests show it can use half as much RAM as Xubuntu, making it an attractive choice for installing on older hardware being refurbished for charitable distribution.[1][6][7]

The name *Lubuntu* is a portmanteau of *LXDE* and *Ubuntu*.[2] LXDE stands for *Lightweight X11 Desktop Environment*,[8] while the word *Ubuntu* means "humanity towards others" in the Zulu and Xhosa languages.[9]

Lubuntu received official recognition as a formal member of the Ubuntu family on 11 May 2011, commencing with Lubuntu 11.10, which was released on 13 October 2011.

Quote end

Lubuntu website link:
http://lubuntu.net/

Lubuntu 12.04 LTS Installation Instructions (based on Pat Wall's installation instructions)

The installation instructions cover installing Lubuntu 12.04.5 LTS from a “netboot over the internet” installation from a single install image. For the purpose of these instructions it is assumed you will be installing Lubuntu 12.04.5 with the LXDE Desktop Environment. The installation process is very similar to the Debian installation.

1. Download the kernel uImage 3.18.23-JM-2 or 3.12.19-rt30 (SDK17) with your AmigaONE X1000 for example:

   http://www.fun-kart-racer.de/2bb57b2bbf87b668a94c/uImage.sdk17.2 (With Tabor sound device support)

   http://www.fun-kart-racer.de/2bb57b2bbf87b668a94c/Tabor-3.18.23-JM-2.tar.gz (With Radeon HD HDMI sound device support)

   User: tabor
   Password: amigaone

2. Download the U-Boot installation initial ramdisk for Lubuntu 12.04.5 with your AmigaONE X1000 for example:

   http://www.fun-kart-racer.de/2bb57b2bbf87b668a94c/Lubuntu_12.04.5_LTS_uInitrd_Tabor.tar.gz or
   http://www.fun-kart-racer.de/2bb57b2bbf87b668a94c/uRamdisk_Ubuntu_12.04_Tabor_net-2

   User: tabor
   Password: amigaone

3. Download the flattened device tree blob file version 2:

   http://www.fun-kart-racer.de/2bb57b2bbf87b668a94c/tabor2.dtb

   User: tabor
   Password: amigaone

4. Copy them to a USB stick with your AmigaONE X1000 for example.

5. Please connect a null modem RS-232 serial cable beetween the Tabor and another computer for example the AmigaONE X1000. You could use PuTTY to access the serial interface (Speed: 115200).

6. Turn on the Tabor board. (U-Boot appears)

```
A1222>
```

7. You can boot the installer using the commands below (For example with the kernel 3.12.19-rt30)

```
A1222> setenv bootargs "console=ttyS0,115200 root=/dev/ram rw"

A1222> fatload usb 0:1 1000000 uImage.sdk17.2

A1222> fatload usb 0:1 5000000 uinitrd_12.04.5

A1222> fatload usb 0:1 2000000 tabor2.dtb

A1222> bootm 1000000 5000000 2000000
```

8. Select Language
9. Select Your Location
10. Detect Keyboard Layout. Select No and Pick from the list
11. Configure Network
12. Enter Hostname
13. Select the Ubuntu Archive Mirror Country - *[it is configured for the UK]*
14. Leave the HTTP Proxy parameter blank and press return - *[there will now be a long delay]*
15. When prompted that no kernel modules were found select Yes to continue without loading them.
16. The installer components will be retrieved from the Ubuntu mirror - *[this will take a long time]*
17. Enter your Full Name
18. Enter your username for your account
19. Enter your password and confirm
20. Select No to Encrypt your home directory
21. Confirm your time zone
22. When prompted for module dm-mod leave the parameter blank and select continue
23. Click Continue at the warning of “Software RAID not available“
24. Click Continue at the warning of “Logical Volume Manager not available“
25. You can now partition your disk.

    ☠ You must exercise caution when modifying your partition tables! ☠

26. The base system will now be retrieved from the mirror site and installed

27. Select “Install security updates automatically”

28. At the software selection screen you will be asked to select which *buntu flavour(s) you would like to install. You can install as many as you like. To install the standard Lubuntu LXDE Desktop Environment arrow down to the “Ubuntu with LXDE Desktop” option and press the space bar to mark the option. Additional there is an option “Lubuntu minimal installation“. Please arrow down to this option and mark it too. Now press return to continue.

29. The additional packages required to install the full Lubuntu desktop will be retrieved and installed. - *[this will take some time to complete depending on the speed of your internet connection]*

30. At *“Continue without boot loader”* take note of your root partition.

31. Select Yes to set confirm the system clock is set as UTC.

32. Select Continue to finish the installation and reboot!

Booting Lubuntu 12.04.5 LTS LXDE Desktop

Enter the following commands replacing the root partition (sda2) with the ID of the partition where you installed Lubuntu.

```
A1222> setenv bootargs "console=ttyS0,115200 root=/dev/sda2"
```

```
A1222> fatload usb 0:1 1000000 uImage.sdk17.2
```

```
A1222> fatload usb 0:1 2000000 tabor2.dtb
```

```
A1222> bootm 1000000 - 2000000
```

Enabling Sound and 2D/3D Graphics hardware acceleration under Lubuntu 12.04.5

The “user” created during the installation process is not part of the audio or video group by default. This is a “bug” in the Lubuntu PowerPC installation procedure. However, it is quite easy to fix. In a terminal window type: sudo usermod -a -G audio, video username replacing username with your own user name. You will have to enter your Admin password. Then type: groups (and check that audio and video are there)

Setting the Lubuntu boot environment variable in U-Boot

```
A1222> setenv lubuntuppc 'setenv bootargs console=ttyS0,115200 root=/dev/sda2 ; fatload usb 0:1 1000000 uImage.sdk17.2 ; fatload usb 0:1 2000000 tabor2.dtb ; bootm 1000000 - 2000000'
```

```
A1222> saveenv
```

After that you can simple start Lubuntu with:

```
A1222> run lubuntuppc
```

3D acceleration with old ATi Radeon graphics cards

There is Mesa 7.11.2 classic (DRI 1) for old graphics cards to use 3D acceleration on your Tabor board.

Installation instructions:

1. Download: http://www.fun-kart-racer.de/2bb57b2bbf87b668a94c/Mesa-7.11_Debian7.7_classic_dri.tar.gz

   User: tabor
   Password: amigaone

2. Copy the unpacked Mesa directory to /usr/local:

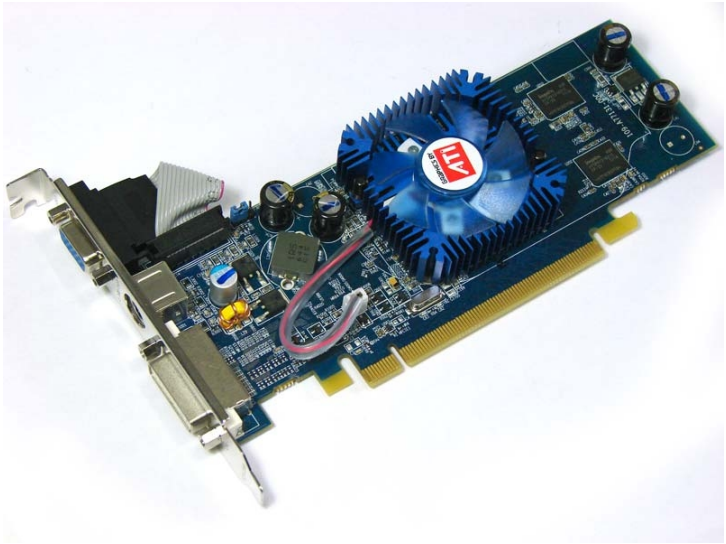
   cp -R Mesa7.11.2-without-gallium /usr/local

3. mv /usr/lib/powerpc-linux-gnu/dri/r300_dri.so /usr/lib/powerpc-linux-gnu/dri/r300_dri.so.bak

4. cp /usr/local/Mesa7.11.2-without-gallium/lib/dri/r300_dri.so /usr/lib/powerpc-linux-gnu/dri

   You could also use the faster PowerPCSPE version of Mesa 7.11.2 classic (DRI 1):

   http://www.fun-kart-racer.de/2bb57b2bbf87b668a94c/Mesa-7.11_Debian7.7_classic-powerpcspe.tar.gz



Using fast PowerPCSPE programs with Debian 8.0 PowerPCSPE in a chroot environment

Just for info (quote Kyle Moffett):

The 'powerpcspe' architecture is a binary-incompatible variant of PowerPC/POWER designed and supported by FreeScale and IBM. It is also known under the trade names "e500"/"MPC8500" and "e200"/"MPC5xx".

This architecture was added to dpkg in commit feb5792 on 2010/04/30:
http://git.debian.org/?p=dpkg/dpkg.git;a=commitdiff;h=feb5792

Additional information can be found at:
http://en.wikipedia.org/wiki/PowerPC_e500
http://en.wikipedia.org/wiki/PowerPC_e200

In particular, the 'powerpcspe' architecture lacks the classic FPU with dedicated FPRs found on most other PowerPC systems. It is replaced with a set of "SPE" instructions which perform floating-point operations on the integer registers.

In an unfortunate choice of architecture design, the instructions used for the "SPE" operations overlap with those for the AltiVec unit on most other modern PowerPC cores.

The "e500v2"-series chips have 64-bit GPRs, where the high 32-bits are accesible only via the special "SPE" instructions, allowing them to make efficient use of the "double" datatype.

The relative rare "e500v1"-series chips have only 32-bit GPRs, and require software traps and emulation to support native "double".

The "e200z3" and "e200z6" chips have no support for floating point at all, but with software traps and emulation are binary-compatible with the "e500"-series chips.

The Debian port to this architecture specifically chooses to optimize for the higher-end chips (e500v2), as most of the others are targeted at automotive applications or no longer in production.

GCC by default builds correctly with full support for the e500v2 as long as the following options are passed to "configure":
--with-cpu=8548
--enable-e500_double
--with-long-double-128

The only changes needed are to extend a few matches on "powerpc ppc64" to also match "powerpcspe" to ensure that we include essential headers. One of those headers in particular (spe.h) is necessary to successfully build EGLIBC's floating-point support.

At this time the 'powerpcspe' architecture port is still very much an unofficial port. While we hope that will change in the future, it is entirely possible that the embedded niche of the processor will make such an official Debian port problematic.

Quote end

You can install Debian 8.0 PowerPCSPE in a chroot environment on Lubuntu 12.04.5 LTS on your Tabor board to use the fast PowerPCSPE programs on Lubuntu. There isn't a PowerPCSPE distribution of Lubuntu available.

Installation instructions:

1. Download a Debian 8.0 PowerPCSPE archive from
   http://www.fun-kart-racer.de/2bb57b2bbf87b668a94c/lxtest.html

   User: tabor
   Password: amigaone

2. Create a directory for the chroot environment: 'mkdir Debian_powerpcspe'

3. Move the tarball to the directory 'Debian_powerpcspe':
   'mv debian-8.0-3_powerpcspe.tar.gz Debian_powerpcspe'

4. Change to user root: 'sudo su'

5. Change to the directory Debian_powerpcspe: 'cd Debian_powerpcspe'

6. Extract the archive with: 'tar zxvf debian-8.0-3_powerpcspe.tar.gz'
   (This takes a long time)

7. Mount proc: 'mount -t proc none ./proc'

8. Chroot to Debian 8.0 PowerPCSPE with: 'chroot . /bin/bash'

9. Upgrade Debian 8.0 PowerPCSPE with:
   'apt-get update', 'apt-get upgrade', and 'apt-get dist-upgrade'

10. Exit the chroot environment with 'exit'

11. You can also work with PowerPCSPE X11 programs if you like. For this you have to use the X11 unix socket from the Lubuntu host system.

    1. Mount the X11 unix socket from Lubuntu in the chroot environment:
       mount --bind */tmp/*.X11-unix *./tmp/*.X11-unix

    2. You have to allow the access from the PowerPCSPE X11 programs:
       'xhost + local:'

       Output: 'non-network local connections being added to access control list'

    3. Chroot to Debian 8.0 PowerPCSPE again with: 'chroot . /bin/bash'

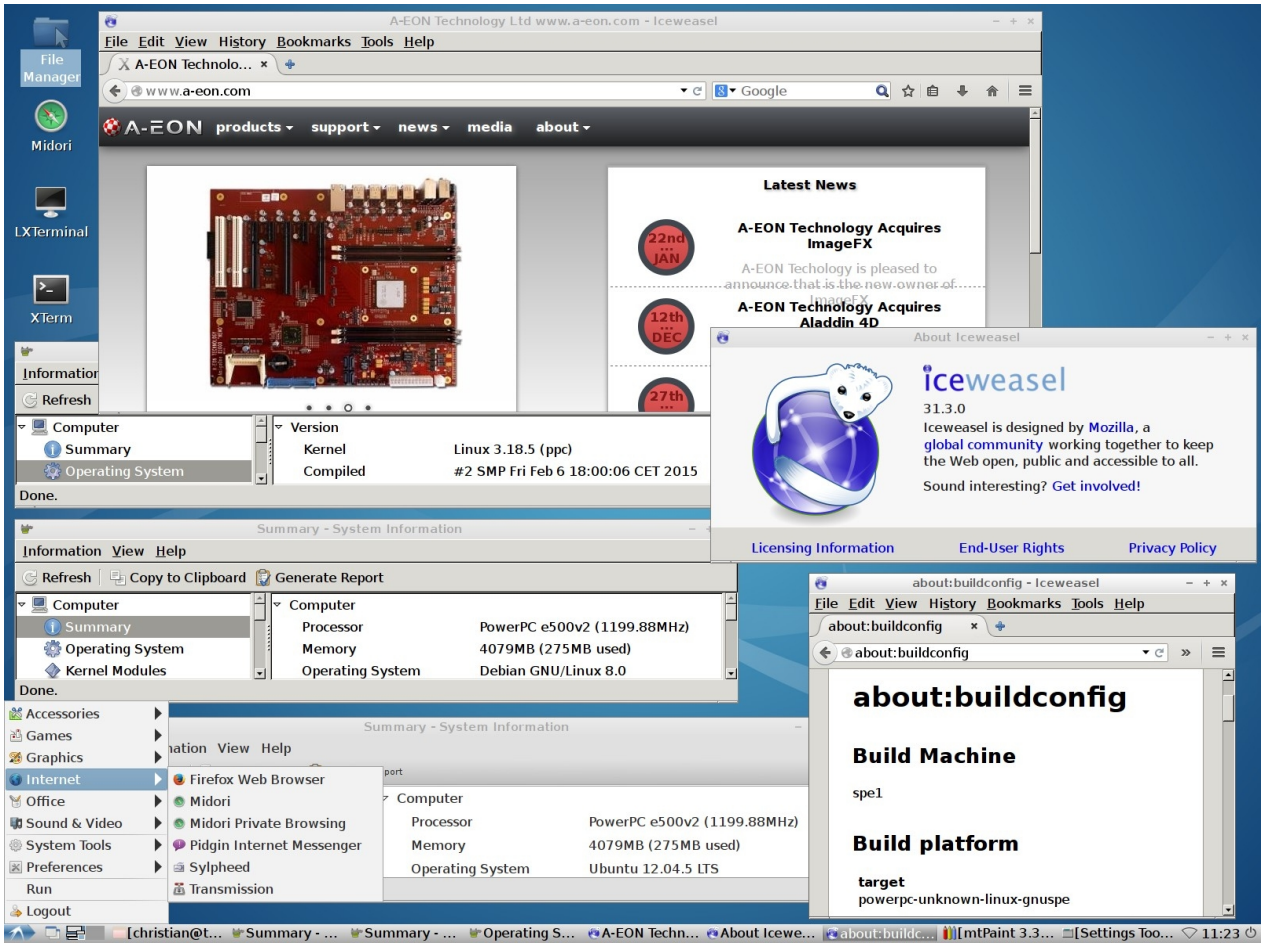
    4. Set up the DISPLAY variable to ':0': 'export DISPLAY=:0'

    5. Yeah, you can start the PowerPCSPE version of iceweasel: 'iceweasel'

This is really amazing! We can use the very fast PowerPCSPE programs on Lubuntu 12.04.5. Iceweasel PowerPCSPE is faster than Firefox PowerPC.

If you want to have a simple access to all installed PowerPCSPE programs then you can start a panel for example the 'mate-panel'.

The MATE panel is part of the MATE Desktop Environment and features program launchers, panel menus, a clock and more.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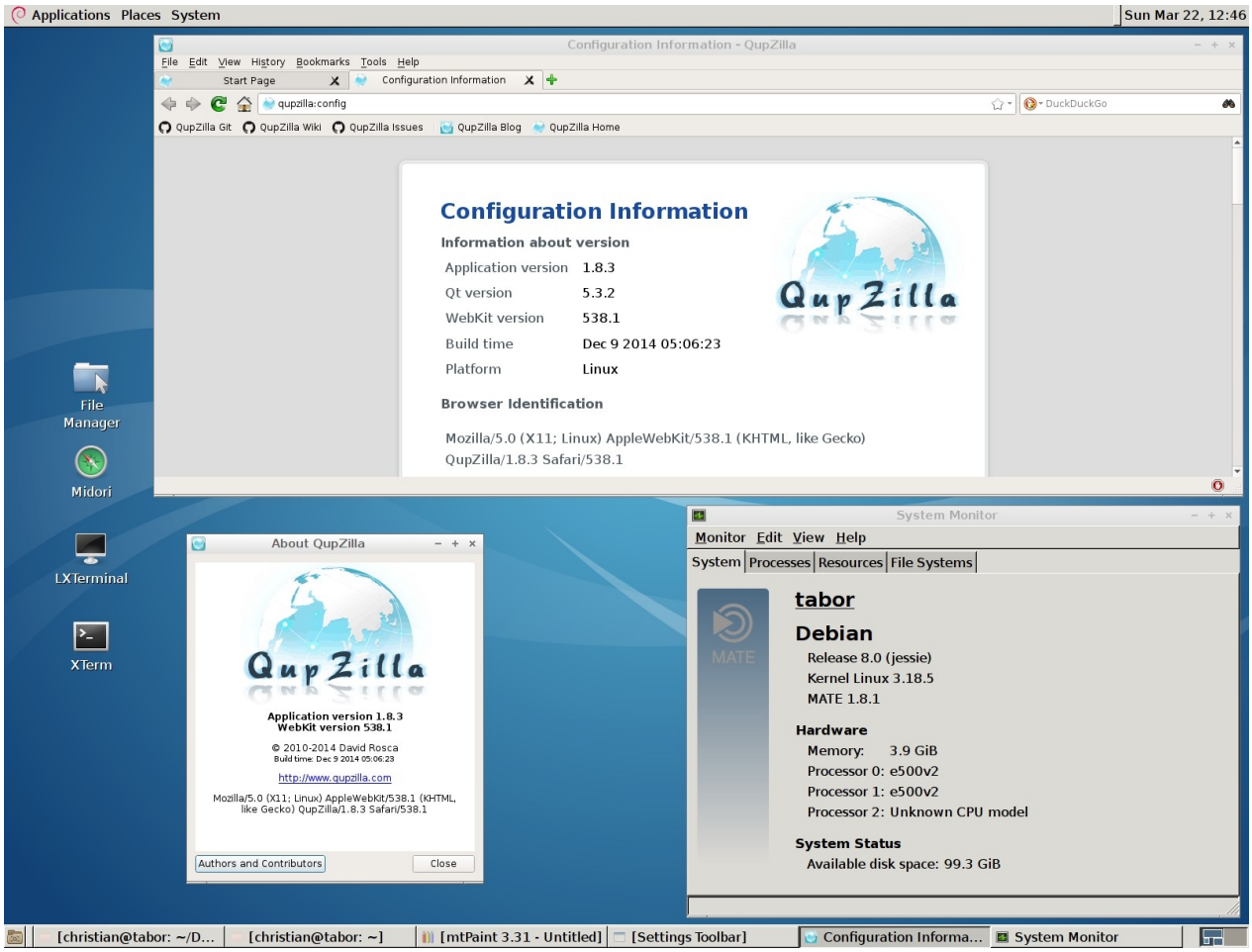
File Edit View History Bookmarks Tools Help
www.a-eon.com
products support news media about
Latest News
A-EON Technology Acquires ImageFX
A-EON Technology Acquires Aladdin 4D
About Iceweasel
iceweasel
31.3.0
Iceweasel is designed by Mozilla, a global community working together to keep the Web open, public and accessible to all.
Licensing Information
End-User Rights
Privacy Policy
Summary - System Information
Refresh
Copy to Clipboard
Generate Report
Computer
Summary
Operating System
Kernel Modules
Processor
Memory
Operating System
about:buildconfig - Iceweasel
about:buildconfig
Build Machine
spe1
Build platform
target
powerpc-unknown-linux-gnuspe
Accessories
Games
Graphics
Internet
Office
Sound & Video
System Tools
Preferences
Run
Logout
Firefox Web Browser
Midori
Midori Private Browsing
Pidgin Internet Messenger
Sylpheed
Transmission


Applications Places System
Sun Mar 22, 12:46
Configuration Information - QupZilla
Configuration Information
Information about version
Application version 1.8.3
Qt version 5.3.2
WebKit version 538.1
Build time Dec 9 2014 05:06:23
Platform Linux
Browser Identification
Mozilla/5.0 (X11; Linux) AppleWebKit/538.1 (KHTML, like Gecko) QupZilla/1.8.3 Safari/538.1
About QupZilla
Application version 1.8.3
WebKit version 538.1
© 2010-2014 David Rosca
Build time: Dec 9 2014 05:06:23
http://www.qupzilla.com
Authors and Contributors
Close
System Monitor
tabor
Debian
Release 8.0 (jessie)
Kernel Linux 3.18.5
MATE 1.8.1
Hardware
Memory: 3.9 GiB
Processor 0: e500v2
Processor 1: e500v2
Processor 2: Unknown CPU model
System Status
Available disk space: 99.3 GiB

Playing fast 3D PowerPCSPE games with Debian 8.0 PowerPCSPE in a chroot environment

If you want to play 3D games on your Tabor board, then you have to install a special SPE version of Mesa for the Debian 8.0 PowerPCSPE chroot environment.

1. Download classic Mesa 7.5 for old ATi Radeon graphics cards (chroot version):

   http://www.fun-kart-racer.de/2bb57b2bbf87b668a94c/Mesa-7.5-Debian_8_powerpcspe.tar.gz

   Download Mesa 8.0 Gallium version for new AMD Radeon HD graphics cards (chroot version):

   http://www.fun-kart-racer.de/2bb57b2bbf87b668a94c/Mesa-8.0-gallium-chroot-powerpcspe.tar.gz

   Website login:

   User: tabor
   Password: amigaone

2. Extract it and copy the directory 'Mesa-7.5-chroot' or 'Mesa-8.0-chroot-powerpcspe' to '/usr/local/' within the chroot environment.

3. Start your Debian 8.0 PowerPCSPE chroot environment with the following commands:

   ```
   cd Debian_powerpcspe
   ```

   ```
   sudo mount -t proc none ./proc
   ```

   ```
   sudo mkdir ./tmp/X11-unix
   ```

   ```
   sudo mount --bind /tmp/.X11-unix ./tmp/X11-unix
   ```

   ```
   sudo mount -o bind /dev ./dev
   ```

   ```
   sudo mount -t sysfs sys ./sys
   ```

   ```
   sudo xhost + local:
   ```

   ```
   sudo chroot . /bin/bash
   ```

4. In the chroot environment you have to export your DISPLAY to the Lubuntu host X11 display with the follwing command:

   ```
   export DISPLAY=:0
   ```

5. If you want to use the Mesa 7.5 or Mesa 8.0 chroot version then you have to set up the environment variable 'LD_LIBRARY_PATH' with the following command:

```
export LD_LIBRARY_PATH=/usr/local/Mesa-7.5-chroot/lib/
```

or

```
export LD_LIBRARY_PATH=/usr/local/Mesa-8.0-chroot-powerpcspe/lib
```

I can recommend you, to try out the powerpcspe version of SuperTuxKart 0.7.3, to test the 3D acceleration in the Debian 8.0 powerpcspe chroot.

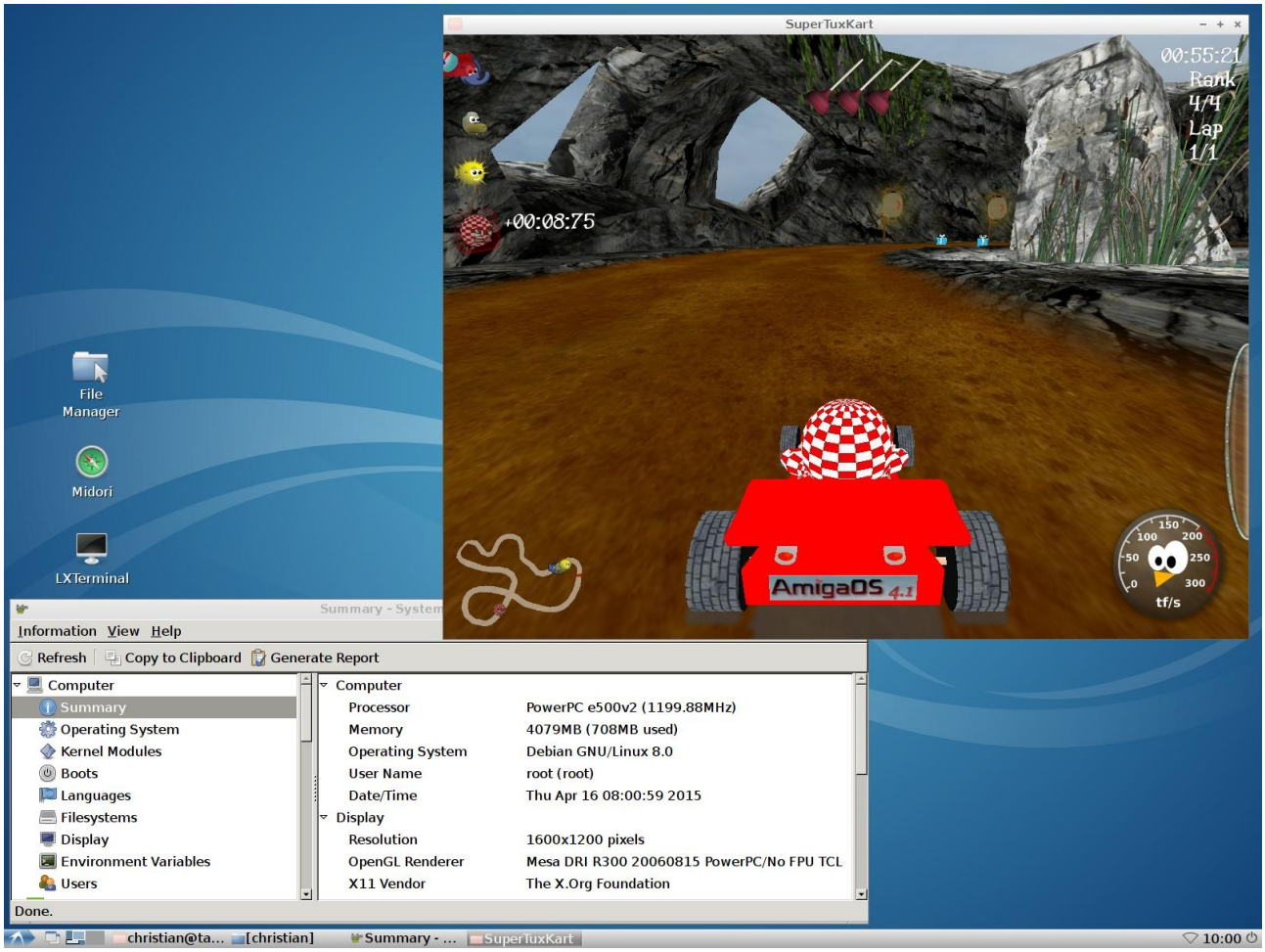
Download:

http://www.fun-kart-racer.de/2bb57b2bbf87b668a94c/supertuxkart_0.7.3-2_powerpcspe.tar.bz2

Website login:

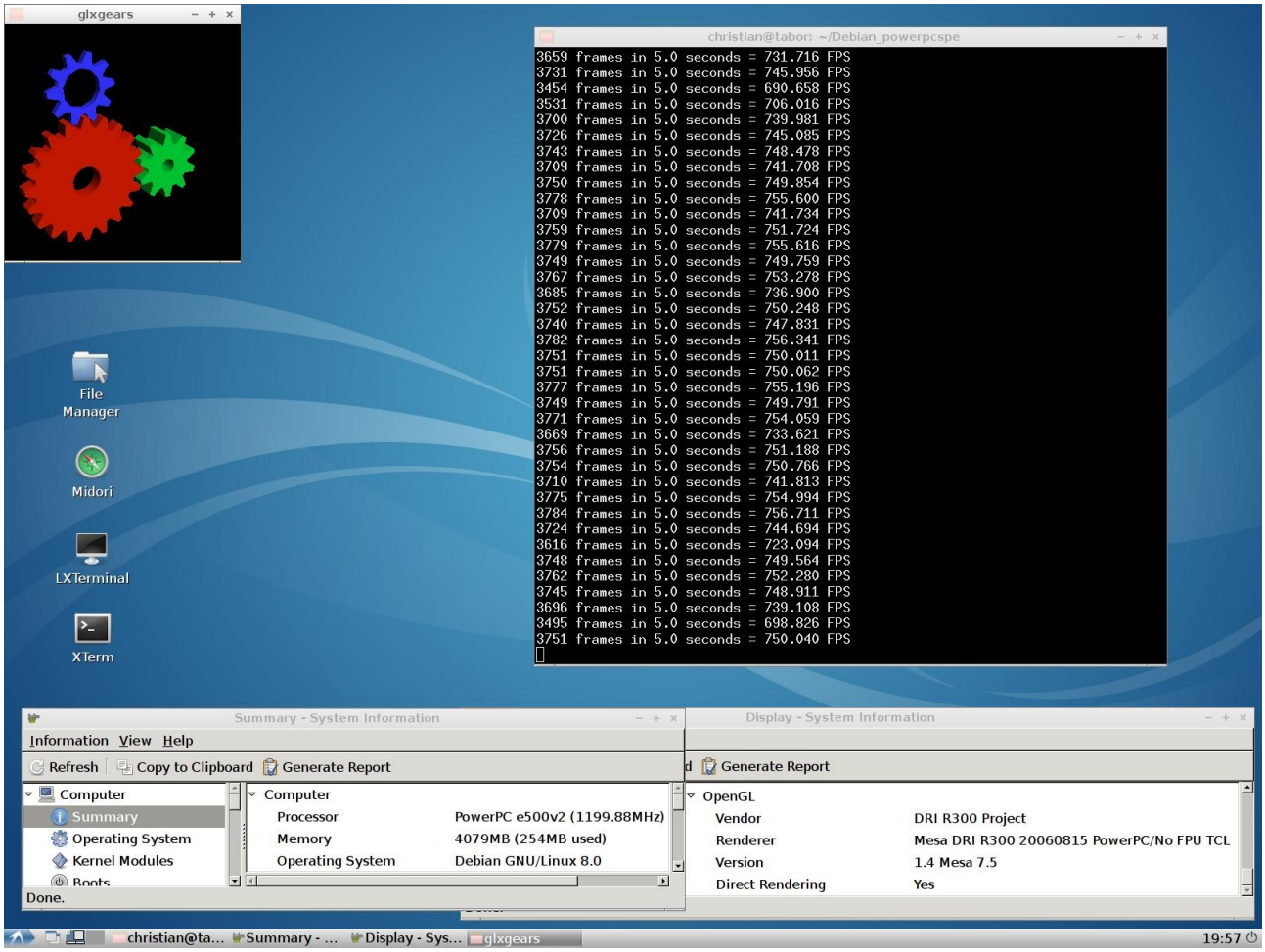
User: tabor
Password: amigaone

You can install all Debian packages for SuperTuxKart with 'dpkg -i' in the Debian powerpcspe chroot environment.

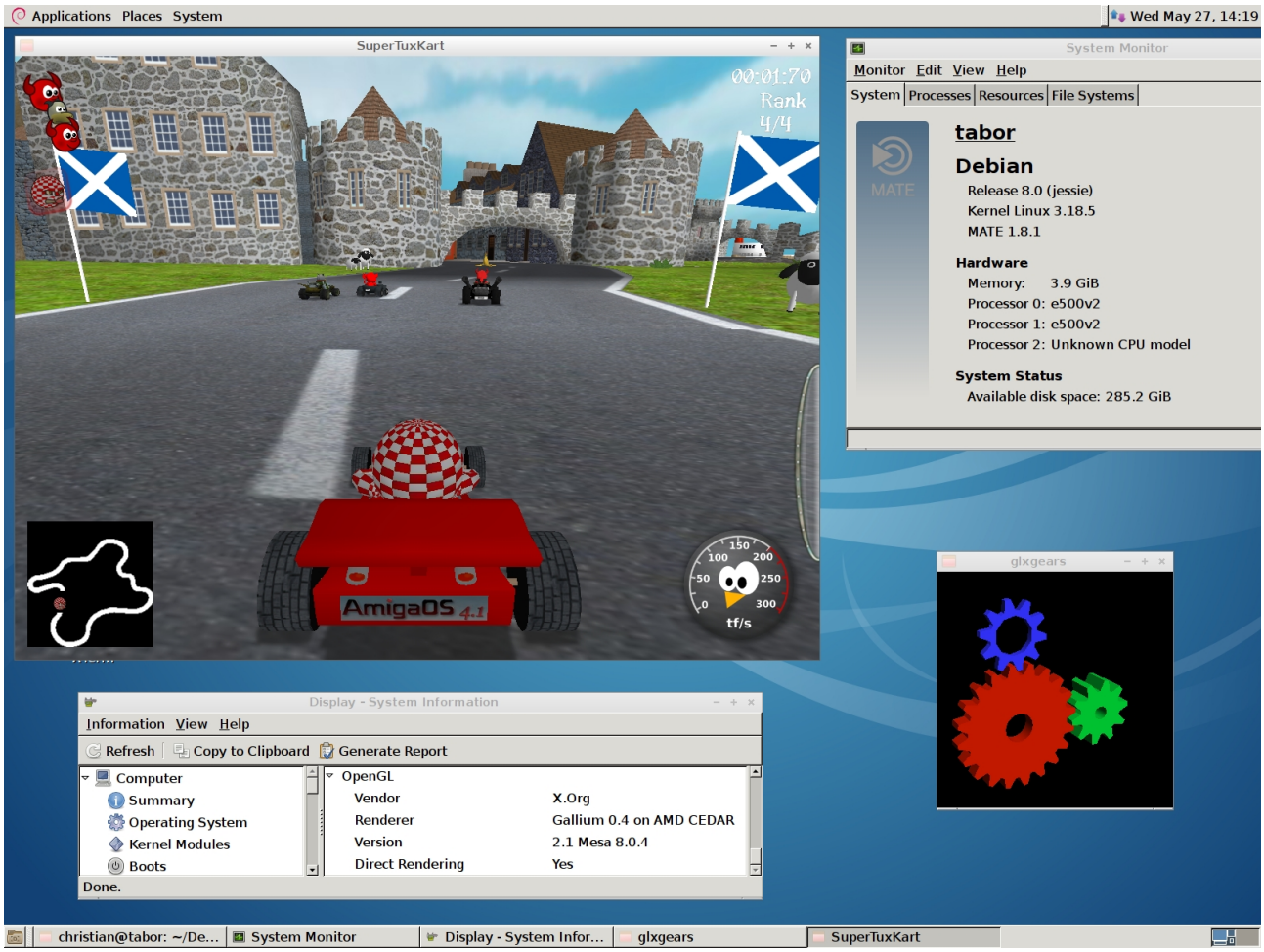


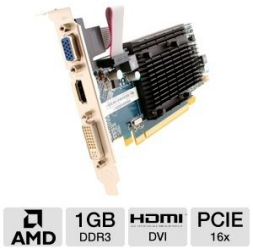
You can also test the 3D acceleration with 'glxgears'.

For example with an old ATi Radeon X1650 SE (Mesa 7.5 classic PowerPCSPE version):



Screenshot with a new AMD Radeon HD5450 (Mesa 8.0 Gallium PowerPCSPE version):





Have a lot of fun with playing 3D games on your Tabor board!

Booting SliTaz PPC Linux

SliTaz GNU/Linux is a free operating system working completely in memory from removable media such as a cdrom or CF card or USB key. It is light and speedy. SliTaz is distributed in the form of a **initrd.gz** that you can easily burn to a cdrom or copy to a CF card or USB key and boot from. When the system is running you can eject the LiveCD or USB key and use your CD drive or USB socket for other tasks. SliTaz PPC is in development yet.

SliTaz 25 Installation Instructions

1. Download SliTaz 25: http://www.xenosoft.de/slitaz25.gz

2. You have to create a SliTaz uRamdisk for the Tabor board with the following command:

   ```
   mkimage -T ramdisk -C gzip -n 'SliTaz 25 PPC Linux' -d slitaz25.gz uSliTaz25
   ```

   Output:

   Image Name: SliTaz 25 PPC Linux
   Created: Sat Dec 27 14:45:37 2014
   Image Type: PowerPC Linux RAMDisk Image (gzip compressed)
   Data Size: 61531389 Bytes = 60089.25 kB = 58.68 MB
   Load Address: 00000000
   Entry Point: 00000000

3. You need a kernel with support for the Freescale Display Interface Unit DIU. For example the kernel 3.12.19-rt30 version 2 (SDK17).

   Note: It's not possible to use the DIU with an installed Radeon graphics card.

   Download: http://www.fun-kart-racer.de/2bb57b2bbf87b668a94c/uImage.sdk17.2

   User: tabor
   Password: amigaone

4. Download the flattened device tree blob file version 2:

   http://www.fun-kart-racer.de/2bb57b2bbf87b668a94c/tabor2.dtb

   User: tabor
   Password: amigaone

5. Copy them to a USB stick with your AmigaONE X1000 for example.

6. Please connect a null modem RS-232 serial cable beetween the Tabor and another computer for example the AmigaONE X1000. You could use PuTTY to access the serial interface (Speed: 115200).

7. Turn on the Tabor board. (U-Boot appears)

8. You can boot SliTaz using the commands below

   ```
   A1222> setenv bootargs "console=ttyS0,115200 root=/dev/ram rw"
   ```

```
A1222> fatload usb 0:1 1000000 uImage.sdk17.2
```

```
A1222> fatload usb 0:1 5000000 uSliTaz25
```

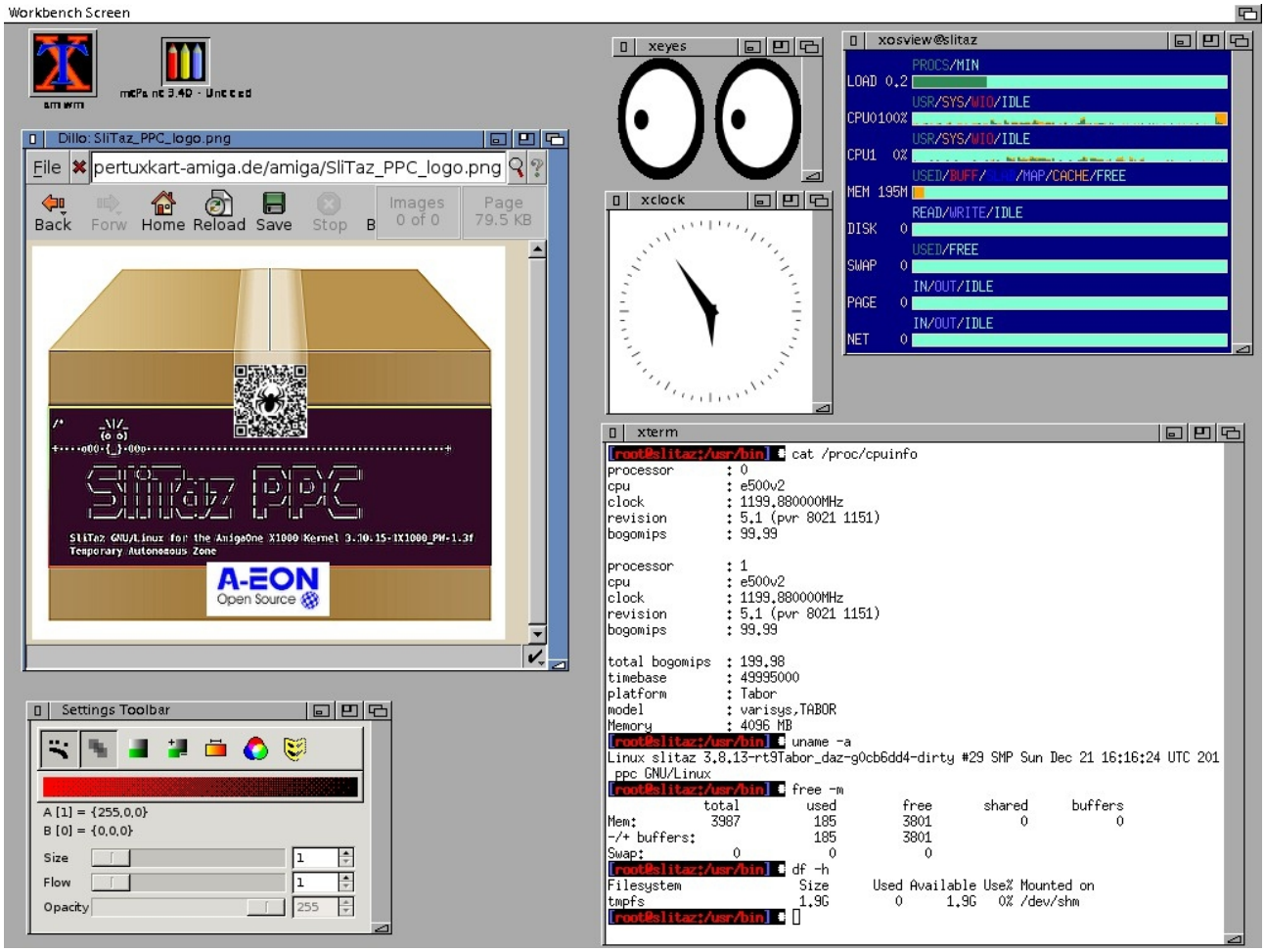
```
A1222> fatload usb 0:1 2000000 tabor.dtb
```

```
A1222> bootm 1000000 5000000 2000000
```

9. You can start X11 with the following command:

```
Xfbdev -retro -mouse mouse,device=/dev/input/mice -keybd
evdev,,device=/dev/input/event1 | xterm -e amiwm
```

Here you are. :-)



Booting SliTaz using just the onboard microsd card by Darren Stevens

1. Do this, then copy uImage, Tabor.dtb and uSlitaz25 to a USB stick
2. Boot to uboot on the Tabor, and enter the following commands: (I am assuming only 1 usb disk)

   ```
   A1222> usb start
   ```

   ```
   A1222> load usb 0 1000000 uImage
   ```

   ```
   A1222> mmc write 1000000 5000 2b16
   ```

   Change this to match the number of 512 byte blocks in your uImage (as a hex number)

   ```
   A1222> load usb 0 1c00000 tabor.dtb
   ```

   ```
   A1222> mmc write 1c00000 4c00 40
   ```

   ```
   A1222> load usb 0 5000000 uSlitaz25
   ```

   ```
   A1222> mmc write 5000000 8000 1d572
   ```

3. Once done the following commands will boot Slitaz:

   ```
   A1222> usb start
   ```

   ```
   A1222> mmc read 1000000 5000 2b16
   ```

   ```
   A1222> mmc read 1c00000 4c00 40
   ```

   ```
   A1222> mmc read 5000000 8000 1d672
   ```

   ```
   A1222> setenv bootargs 'root=/dev/ram rw'
   ```

   ```
   A1222> bootm 1000000 5000000 1c00000
   ```

   The mmc read/write command use the following template:

   mmc read/write <mem address> <block start> <# of blocks>

   The 1d572 is the number of blocks, as long as it is bigger than the Ramdisk size / 512 then it will work.

   You can of course put these all in a script file to make things even easier.

Virtualization with KVM HV

The Linux kernel supports KVM HV for the e500v2 CPU. KVM (for Kernel-based Virtual Machine) is a full virtualization solution for Linux. You can boot an e500v2 virtual machine for example with SliTaz and it works with full CPU speed. You can use a modern Linux kernel for example the 3.19.3 with the e500v2 CPU directly.

Quote Wikipedia:

KVM (**Kernel-based Virtual Machine**) is a virtualization infrastructure for the Linux kernel that turns it into a hypervisor, which was merged into the Linux kernel mainline in February 2007.[1] KVM requires a processor with hardware virtualization extension.[2] KVM originally supported x86 processors and has been ported to S/390,[5] PowerPC,[6] and IA-64. An ARM port was merged during the 3.9 kernel merge window.[7]

We created a KVM package for you with all things you need to test KVM on your Tabor board.

Package content:

1. Kernel 3.18.5 KVM for the Tabor board (CONFIG_KVM_E500V2=y)

   Support running unmodified E500 guest kernels in virtual machines on E500v2 host processors.

2. Kernel 3.19.3 for the virtual QEMU e500v2 board (CONFIG_KVM_GUEST=y)

   This kernel has various optimizations for running under the KVM hypervisor. Overhead for the kernel when not running inside KVM should be minimal.

3. Kernel configs

4. QEMU 2.0.2 PPC binary

5. U-Boot

6. SliTaz25

Download KVM package for the Tabor board: http://www.fun-kart-racer.de/2bb57b2bbf87b668a94c/KVM_guest_and_host_kernels_Tabor.tar.gz

You need the flattened device tree blob file version 2 for the kernel 3.18.5. Download: http://www.fun-kart-racer.de/2bb57b2bbf87b668a94c/tabor2.dtb

User: tabor
Password: amigaone

If you use a new AMD Radeon HD graphics card then you have to download the kernel 3.18.5-3.

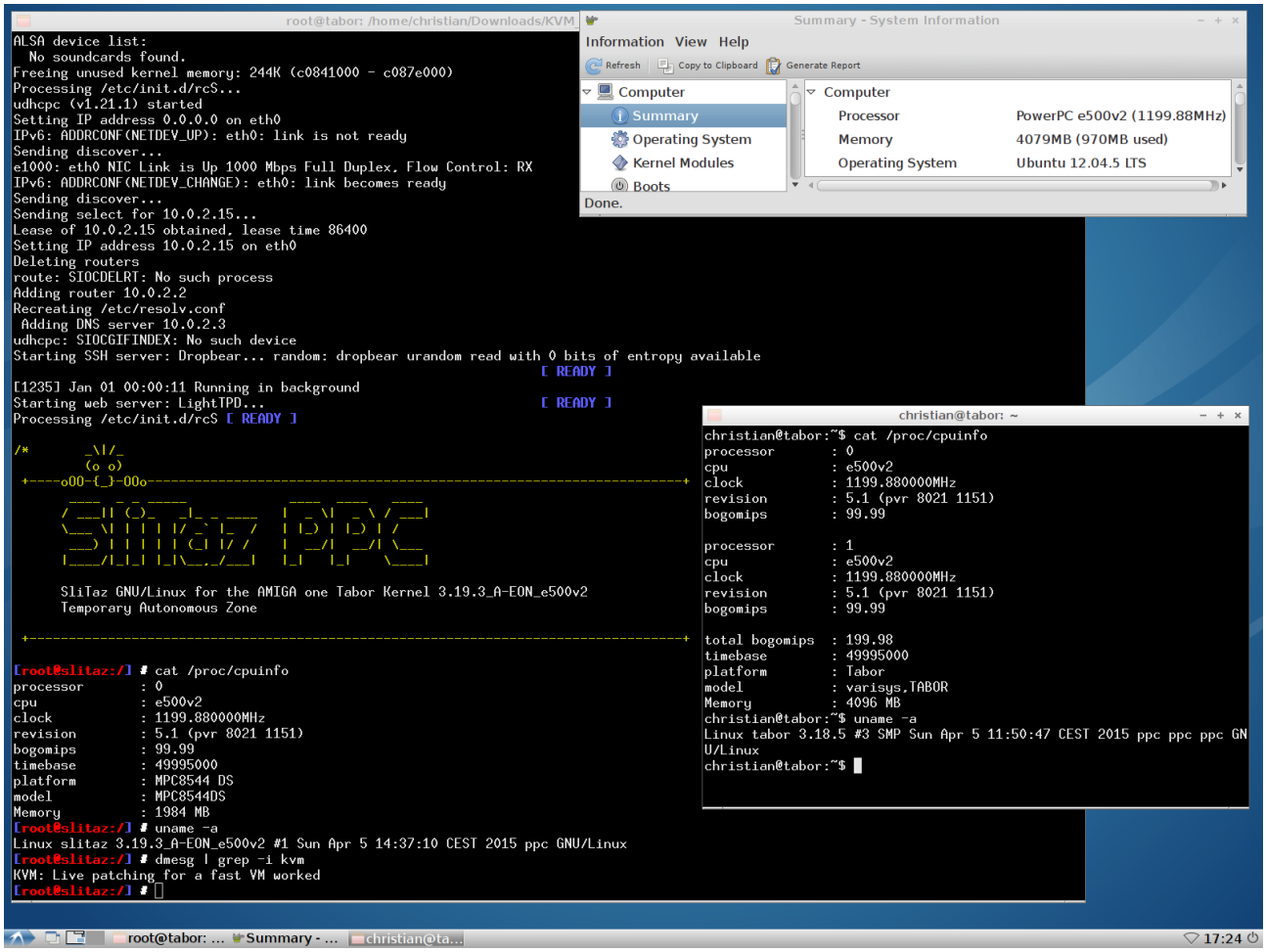
http://www.fun-kart-racer.de/2bb57b2bbf87b668a94c/uImage-3.18.5-3

User: tabor
Password: amigaone

Command to start the virtual QEMU e500v2 board on your Tabor board:

```
qemu-system-ppc -cpu e500v2 -M mpc8544ds -enable-kvm -m 2047 -bios u-boot.e500 -nographic
-kernel uImage-kvm-guest -initrd slitaz25.gz -net nic,vlan=0,model=e1000 -net user,vlan=0
```

Screenshot SliTaz in a virtual QEMU KVM e500v2 machine on the Tabor board:



You can also copy the chroot powerpcspe version of Debian into a mounted raw image and boot it with QEMU/KVM.

Instructions

1. Create a raw image for QEMU with 'dd':

   ```
   dd if=/dev/null of=debian_ppcspe.img bs=1M seek=10240
   ```

   (Using seek creates a sparse file, which saves space.)

2. Format it with ext4 as root:

```
mkfs.ext4 -F debian_ppcspe.img
```

3. Mount it via loop device:

```
mount -t ext4 -o loop debian_ppcspe.img /mnt
```

4. Change to the directory '/mnt' and extract the Debian powerpcspe tar.gz file:

```
cd /mnt
```

```
tar zxvf /home/christian/Downloads/debian-8.0-1_powerpcspe.tar.gz
```

5. Umount the raw image:

```
umount /mnt
```

6. You can start Debian 8.0 powerpcspe in a virtual e500v2 QEMU machine with the following command:

```
qemu-system-ppc -cpu e500v2 -M mpc8544ds -enable-kvm -m 2047
-bios ./u-boot.e500 -nographic -kernel ./uImage-kvm-guest -drive
file=debian_ppcspe.img,index=0,if=virtio -net
nic,vlan=0,model=e1000 -net user,vlan=0 -append "rw
root=/dev/vda 1"
```

Audio and video support

There is a WM8776 audio chip on the Tabor board. You can only use it with the kernel 3.12.19-rt30.

Download:

http://www.fun-kart-racer.de/2bb57b2bbf87b668a94c/uImage.sdk17.2

User: tabor
Password: amigaone

The SSI interface runs in slave mode, so sample rates are controlled from the codec. Freescale simply program the SSI to report it supports all rates, and allow the codec to deal with missing rates, the wm8776.c file deals with missing rates by printing an error. The following rates are supported by the WM8776 codec:

16000Hz, 24000Hz, 32000Hz, 48000Hz, 64000Hz and 96000Hz.

Notes: I recommend you to use audio and video inside the Debian 8 PowerPCSPE chroot. You have to activate Mesa for playing videos with the following command:

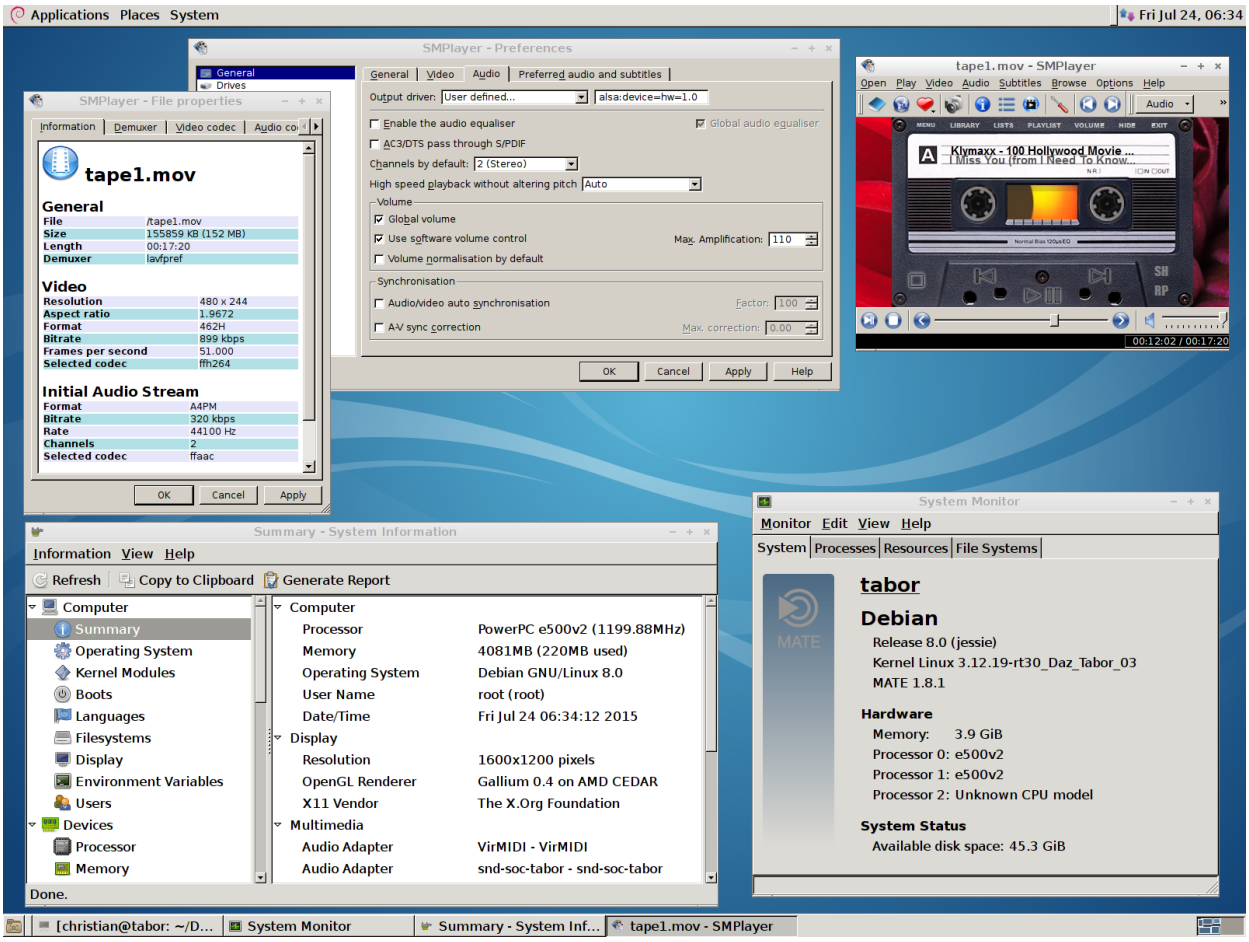
```
export LD_LIBRARY_PATH=/usr/local/Mesa-8.0-chroot-powerpcspe/lib
```

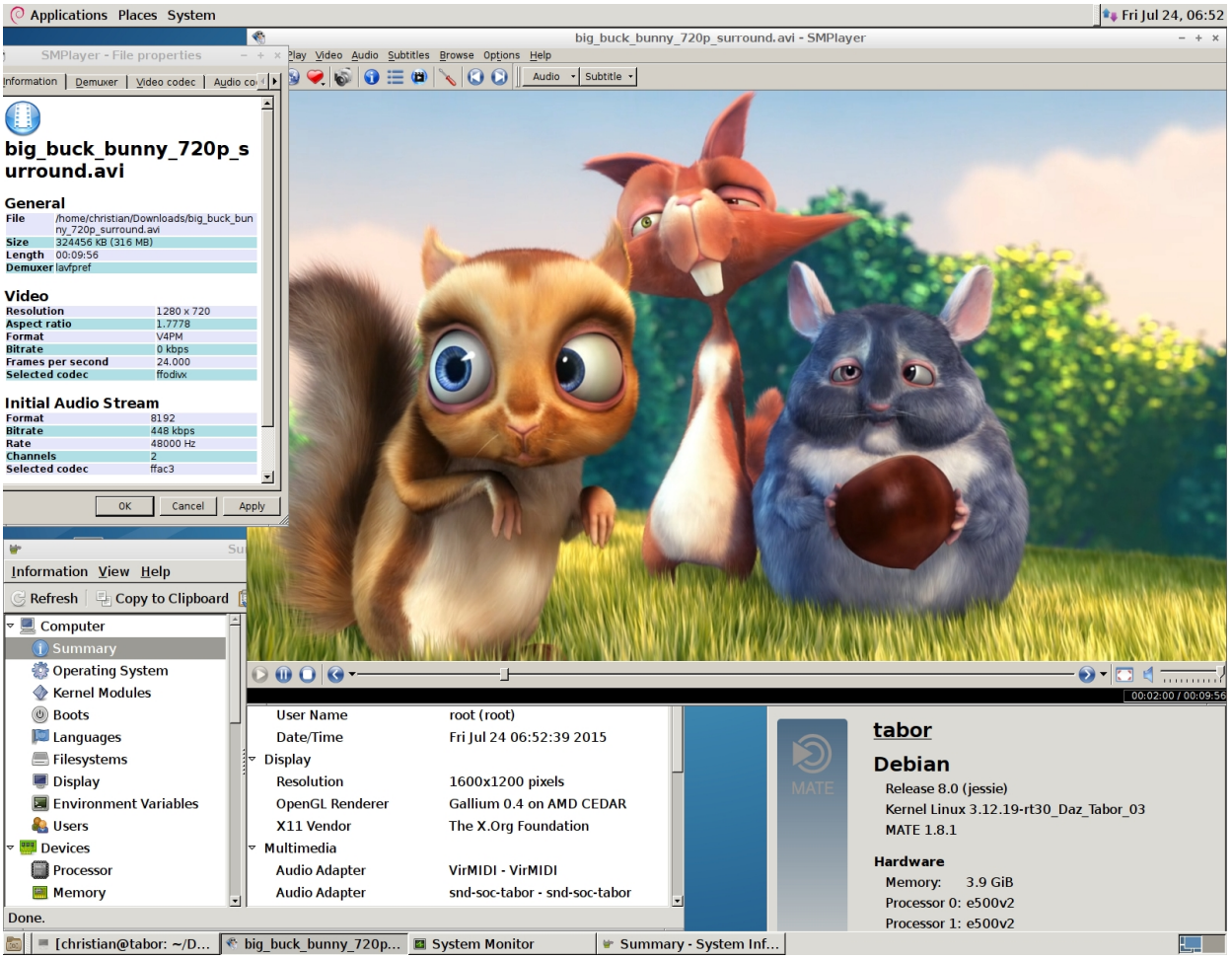
If you want to use the SMPlayer in the Debian 8 PowerPCSPE chroot with the Tabor sound device then you'll have to configure the output driver in the preferences of SMPlayer to "**alsa:device=hw=1.0**" for example.

OpenAL is configured for the Tabor sound device in the Debian 8 PowerPCSPE chroot. Thereby you can play SuperTuxKart with the Tabor sound device.
I added "**device = default:CARD=sndsoctabor**" to the configuration file of OpenAL "**/etc/openal/alsoft.conf**" in the Debian 8 PowerPCSPE chroot.

It is also possible to use the Radeon HD HDMI audio sound device. If you want to use it then you'll have to use Julian's kernels.

Downloads: http://www.fun-kart-racer.de/2bb57b2bbf87b668a94c/lxtest.html


Applications Places System
Fri Jul 24, 06:34
SMPlayer - Preferences
SMPlayer - File properties
tape1.mov - SMPlayer
tape1.mov
General
Video
Initial Audio Stream
Summary - System Information
Information View Help
Refresh Copy to Clipboard Generate Report
Computer
Summary
Operating System
Kernel Modules
Boots
Languages
Filesystems
Display
Environment Variables
Users
Devices
Processor
Memory
Processor PowerPC e500v2 (1199.88MHz)
Memory 4081MB (220MB used)
Operating System Debian GNU/Linux 8.0
User Name root (root)
Date/Time Fri Jul 24 06:34:12 2015
Resolution 1600x1200 pixels
OpenGL Renderer Gallium 0.4 on AMD CEDAR
X11 Vendor The X.Org Foundation
Audio Adapter VirMIDI - VirMIDI
Audio Adapter snd-soc-tabor - snd-soc-tabor
Done.
System Monitor
Monitor Edit View Help
System Processes Resources File Systems
tabor
Debian
Release 8.0 (jessie)
Kernel Linux 3.12.19-rt30_Daz_Tabor_03
MATE 1.8.1
Hardware
Memory: 3.9 GiB
Processor 0: e500v2
Processor 1: e500v2
Processor 2: Unknown CPU model
System Status
Available disk space: 45.3 GiB
[christian@tabor: ~/D...
System Monitor
Summary - System Inf...
tape1.mov - SMPlayer


Applications Places System
Fri Jul 24, 06:52
big_buck_bunny_720p_surround.avi - SMPlayer
SMPlayer - File properties
big_buck_bunny_720p_surround.avi
General
Video
Initial Audio Stream
Information View Help
Refresh Copy to Clipboard
Computer
Summary
Operating System
Kernel Modules
Boots
Languages
Filesystems
Display
Environment Variables
Users
Devices
Processor
Memory
User Name root (root)
Date/Time Fri Jul 24 06:52:39 2015
Resolution 1600x1200 pixels
OpenGL Renderer Gallium 0.4 on AMD CEDAR
X11 Vendor The X.Org Foundation
Audio Adapter VirMIDI - VirMIDI
Audio Adapter snd-soc-tabor - snd-soc-tabor
Done.
tabor
Debian
Release 8.0 (jessie)
Kernel Linux 3.12.19-rt30_Daz_Tabor_03
MATE 1.8.1
Hardware
Memory: 3.9 GiB
Processor 0: e500v2
Processor 1: e500v2
[christian@tabor: ~/D...
big_buck_bunny_720p...
System Monitor
Summary - System Inf...

Installing Debian 8 PowerPCSPE on a partition on a hard disk or on a USB flash drive

It is possible to boot Debian 8 PowerPCSPE from a partition directly. You don't need a chroot anymore.

Here are the installation instructions for Debian 8 PowerPCSPE (based on the Fedora installation instructions by Pat Wall. Thanks to Pat).

Login to your current Linux distribution, e.g. Debian or Lubuntu and create an **ext4** partition of at least 20GB using **GParted** or similar tool of your choice. If you want to install Debian 8 PowerPCSPE on a USB flash drive I recommend you to create first a small **fat16** partition for the Linux kernels and the dtb files and then an **ext4** partition for the Debian 8 PowerPCSPE system.

Login to your current Linux distribution, e.g. Debian or Ubuntu, and open a terminal to complete the following steps.
Become the root user by entering

```
su (for Ubuntu: sudo su)
```

<return>

Enter your root password **<return>**

Create a mount point on which to mount the new Debian 8 PowerPCSPE partition:

```
mkdir /mnt/debian8powerpcspe
```

<return>

Mount the partition where you want to install Debian8 PowerPCSPE:

```
mount -t ext4 /dev/sdXX /mnt/debian8powerpcspe
```

<return>

Download the Debian 8 PowerPCSPE tarball from the following URL:

http://www.fun-kart-racer.de/2bb57b2bbf87b668a94c/debian-8.0-6_usb_flash_drive_backup_powerpcspe.tar.gz

User: tabor
Password: amigaone

(The compressed image is 2.4GB in size and will expand to 5.2GB)
Copy the tar.gz file to the partition where you want to install Debian 8 PowerPCSPE.

```
cp debian-8.0-6_usb_flash_drive_backup_powerpcspe.tar.gz /mnt/debian8powerpcspe
```

<return>

Change to /mnt/debian8powerpcspe.

```
cd /mnt/debian8powerpcspe
```

<return>

Unpack the tarball.

```
tar zxvf  debian-8.0-6_usb_flash_drive_backup_powerpcspe.tar.gz
```

<return>

You could also decompress a Debian 8 PowerPCSPE 7-Zip file to the USB pen drive.

Download:

http://www.fun-kart-racer.de/2bb57b2bbf87b668a94c/Tabor_debian_8_powerpcspe_5.7z

After the decompressing the img with 7-Zip you can copy it with “dd“ to a USB pen drive.

dd if=“Tabor_debian_8_powerpcspe_5“ of=“disk drive ID“

After that you have to edit Debian 8 PowerPCSPE's **/etc/fstab** with the right partition data.

Booting Debian 8 PowerPCSPE
To boot Debian 8 PowerPCSPE at the u-boot prompt you will need to do the following:
Remember to substitute the root partition (/dev/sdb2 in this example) that you installed Debian 8 PowerPCSPE on.
(Note this is typed as a single line at the u-boot prompt)

```
A1222> setenv bootargs root=/dev/sdb2
```

Note: You need **rootdelay=5** or higher as an additional boot argument for USB pen drives.

For example: `A1222> setenv bootargs root=/dev/sdb2 rootdelay=5`

Load a Linux kernel for example the kernel 3.12.19-rt30 version 2 from a usb flash drive:

```
A1222> fatload usb 0:1 1000000 uImage.sdk17.2
```

Load the flattened device tree blob file version 2:

```
A1222> fatload usb 0:1 2000000 tabor2.dtb
```

Boot the kernel with the dtb file:

```
A1222> bootm 1000000 - 2000000
```

Debian 8 PowerPCSPE will now boot to the “Login” Screen.

Users:

root with password **amigaone**
amigaone with password **amigaone**

LibreOffice and E-UAE JIT for the A1222 (PowerPCSPE version)

There are PowerPCSPE versions of LibreOffice and E-UAE JIT available. You can easily install LibreOffice via **dpkg -i *** on your installed Debian 8 PowerPCSPE. For E-UAE you just need to decompress the tarball. You can also use them inside a Debian 8 PowerPCSPE chroot.

Download LibreOffice 4.1.4 for Debian 8.0 PowerPCSPE:

http://www.fun-kart-racer.de/2bb57b2bbf87b668a94c/LibreOffice_4.1.4_powerpcspe.tar.bz2

Download E-UAE JIT 1.0.1 for Debian 8.0 PowerPCSPE:

http://www.fun-kart-racer.de/2bb57b2bbf87b668a94c/E-UAE_JIT_1.0.1_powerpcspe.tar.bz2

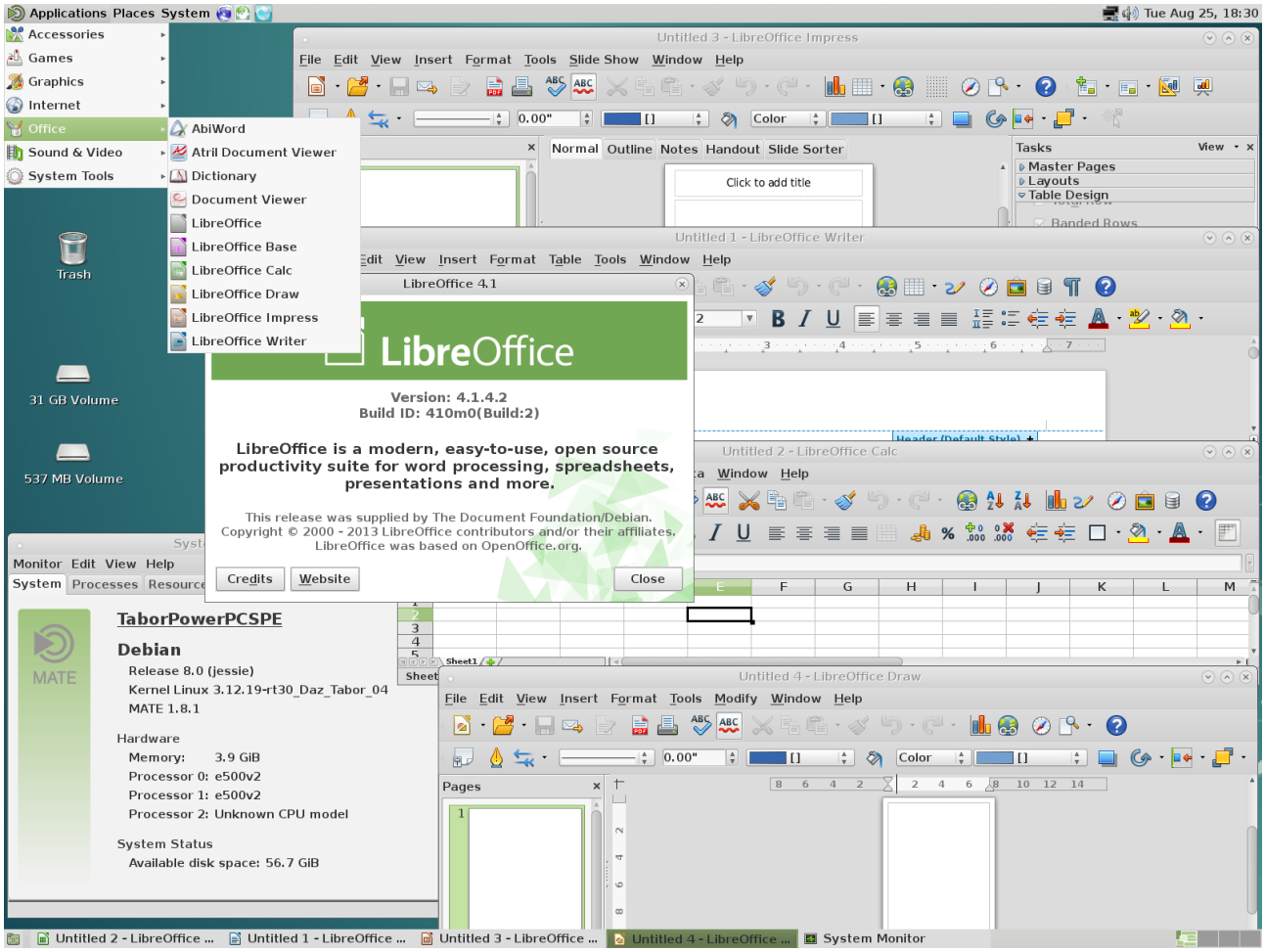
Config files for E-UAE JIT:

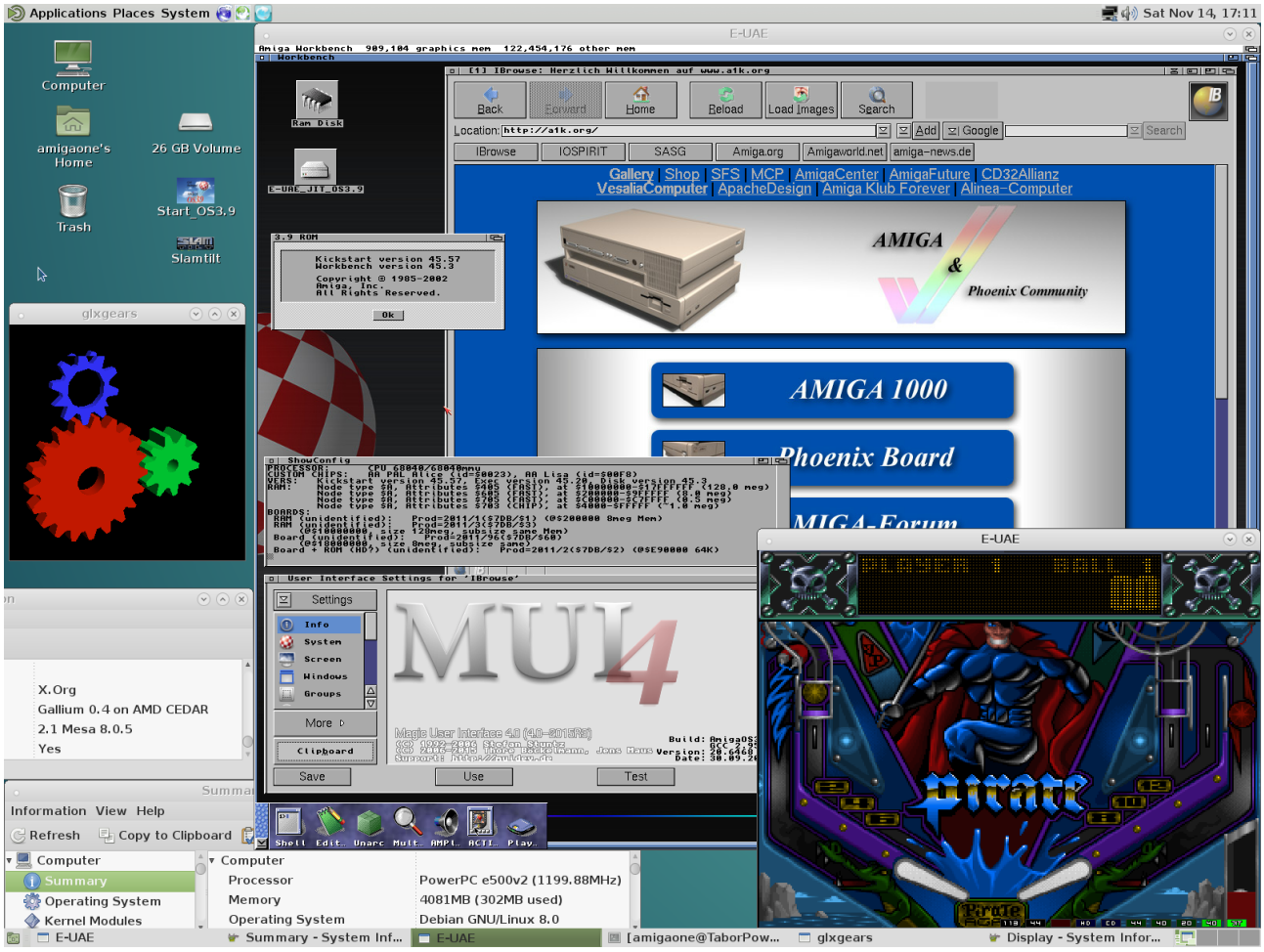
http://www.fun-kart-racer.de/2bb57b2bbf87b668a94c/uaerc_OS3.9_OS3.5_AmiKit8_E-UAE_JIT_PowerPCSPE

http://www.fun-kart-racer.de/2bb57b2bbf87b668a94c/uaerc_AGA_games_E-UAE_JIT_PowerPCSPE

The img **Tabor_debian_8_powerpcspe_5** includes LibreOffice and E-UAE JIT.

Screenshots of LibreOffice 4.1.4 and E-UAE JIT on Debian 8 PowerPCSPE:




Applications Places System
Sat Nov 14, 17:11
E-UAE
Computer
amigaone's Home
26 GB Volume
Trash
Start_OS3.9
Slamtilt
glxgears
Ram Disk
E-UAE_JIT_OS3.9
Back
Forward
Home
Reload
Load Images
Search
Location: http://a1k.org/
IBrowse
IOSPIRIT
SASG
Amiga.org
Amigaworld.net
amiga-news.de
Gallery | Shop | SFS | MCP | AmigaCenter | AmigaFuture | CD32Allianz
VesaliaComputer | ApacheDesign | Amiga Klub Forever | Alinea-Computer
AMIGA & Phoenix Community
AMIGA 1000
Phoenix Board
Kickstart version 45.57
Workbench version 45.3
Copyright © 1985-2002
Amiga, Inc.
All Rights Reserved.
Ok
ShowConfig
User Interface Settings for 'IBrowse'
Settings
Info
System
Screen
Windows
Groups
More
Clipboard
Save
Use
Test
MUI4
X.Org
Gallium 0.4 on AMD CEDAR
2.1 Mesa 8.0.5
Yes
Information View Help
Refresh
Copy to Clipboard
Computer
Summary
Operating System
Kernel Modules
Processor
PowerPC e500v2 (1199.88MHz)
Memory
4081MB (302MB used)
Operating System
Debian GNU/Linux 8.0
Pirate
E-UAE
Summary - System Inf...
[amigaone@TaborPow...
glxgears
Display - System Infor...

Applications Places System
Thu Nov 12, 00:33
E-UAE
Computer
amigaone's Home
Trash
31 GB Volume
537 MB Volume
E-UAE PowerPC JIT 1.0.1
E-UAE PowerPC JIT 1.0.1 SDL
Slamtilt
E-UAE_JIT_1.0.1_powerpcspe
E-UAE_JIT_1.0.1_powerpcspe.tar.bz2
Ram Disk
AmigaOS3.9
Emergency-Boot
E-UAE_JIT_OS3.9
AHI Preferences
Mode settings
Advanced settings
Save
Use
Cancel
AmigaOne
A1222
System Monitor
Monitor Edit View Help
System
Processes
Resources
File Systems
TaborPowerPCSPE
Debian
Release 8.0 (jessie)
Kernel Linux 3.12.19-rt30_Daz_Tabor_04
MATE 1.8.1
Hardware
Memory: 3.9 GiB
Processor 0: e500v2
Processor 1: e500v2
A-EON
E-UAE
System Monitor

Some hints about the img Tabor_debian_8_powerpcspe_5:

The automatic network setup extended the boot time. If you comment out the network interface which doesn't connect to the network then you can get a faster Linux boot.

vi /etc/network/interfaces

#auto eth1
#allow-hotplug eth1
#iface eth1 inet dhcp
auto eth2
allow-hotplug eth2
iface eth2 inet dhcp

I have commented out the network interface eth1.

It is also possible to boot the Linux kernel and the dtb file directly from the Linux partition without a FAT partition with the following commands (For example with Debian 8 PowerPCSPE copied on /dev/sda2):

```
A1222> load sata 1:2 1000000 /boot/uImage.sdk17.2
A1222> load sata 1:2 2000000 /boot/tabor2.dtb
A1222> setenv bootargs root=/dev/sda2
A1222> bootm 1000000 - 2000000
```

Tabor U-boot firmware

Download: http://www.fun-kart-racer.de/2bb57b2bbf87b668a94c/Tabor_Uboot.7z

Installation: Just decompress and copy it with “dd“ to a microSD card.