
Dual Boot AmigaOS 4.1 - Linux Debian on Sam440ep

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1. Downloading and burning the ISO

First of all you should download the Debian ISO from ACube Systems website. You can find the ISO on both Sam440ep (<http://www.acube-systems.biz/index.php?page=hardware&pid=1>) and Sam440ep-flex pages (<http://www.acube-systems.biz/index.php?page=hardware&pid=2>).

Scroll down to the bottom of the page until you reach the "Download" section and choose the version of Debian install ISO available there (usually it's the latest version). Debian-503-sam440ep-netinst.iso is the version available when this guide was published.

After you have downloaded the ISO you can burn it with your favorite burning app. If you haven't one installed AmigaOS 4.1 ships with AmiDVD, a very good and simple burning tool. You can install it from the "Extras-installer" on AmigaOS 4.1 CD. If you choose to use AmiDVD these are the simple steps to burn the ISO: run the program, insert a blank CD-R on your CD-Writer, click on the "Imagefile" gadget and choose the ISO you just downloaded. Now click on the "Burn Image" tab, set the writing speed at 24x (or the max speed your burner supports) and then click the "Burn CD-R" button. AmiDVD will start writing the ISO to CD. When AmiDVD is finished you can eject the CD.

2. Setting up the Hard Disk

The first thing you need to do is to create the space needed for the installation on your hard disk. We suggest to create a partition of at least 40 GigaByte, in this way you'll have a lot of room to install programs and games.

To create a partition you need to use "MediaToolBox". You can run it by clicking with the right button of your mouse on the workbench screen (if you are using the ContextMenus commodity) and choosing "System->MediaToolBox". Otherwise you can find MediaToolbox on the SYS partition, inside the System drawer. Either way you choose to run it, when it opens click on "Normal" mode, "Start" and "Ok".

Select your harddisk from the list, click on "Edit partitions and filesystems". After that you will see all the partitions available on the selected hard disk. If you already have enough space on your hard disk that is not already partitioned then you are ready to install Linux. Click "Cancel" and close MediaToolbox.

Otherwise, you need to setup your hard disk creating/moving partitions in order to make enough room for Linux. Be careful! Changing you partitions details will destroy **ALL YOUR DATA**. Please, use programs like Directory Opus to backup and organize your files.

When your hard disk has enough free space reserved for Linux, you are ready to start the installation. **DO NOT TOUCH** the free space now, this aspect will be managed under Linux.

For an easier installation we suggest to reserve free space for the new Linux partitions at the end of the hard disk. This way, you will not be confused with the logic number of the partitions (in the following chapters you will understand why, just trust us for the moment ;-))

3. Installing the bootloader

We have two different choices now: using Parthenope, a custom bootloader, or using SLB, the standard bootloader of AmigaOS 4.1. We will cover both in our tutorial.

3.1 Installing Parthenope

Download Parthenope from ACube Systems website. You can find the latest version on both Sam440ep (<http://www.acube-systems.biz/index.php?page=hardware&pid=1>) and Sam440ep-flex pages (<http://www.acube-systems.biz/index.php?page=hardware&pid=2>).

Scroll down to the bottom of the page until you reach the "Download" section and click on the "Parthenope Bootloader" archive link.

After you have downloaded the archive, unpack it on your hard disk. If you closed MediaToolBox then run it again, choose "**Normal**", select the hard disk where you wish to install Parthenope and click on "**Edit RDB/Reinstall...**". A new window will open. If you look at the bottom of this window you will see a section labelled "**AmigaOne boot code (SLB)**". Click on "Install" and choose **Parthenope** from the location where you unpacked it. Click "**Ok, accept changes**" and then "**Save to disk**" and close MediaToolBox.

Please note: in order to use Parthenope as bootloader, your AmigaOS 4.1 boot partition must have a SFS filesystem. If your AmigaOS 4.1 boot partition has a different filesystem you must change it but BEWARE: CHANGING THE FILESYSTEM OF AN ALREADY EXISTING PARTITION WILL DESTROY ALL YOUR DATA! MAKE A BACKUP BEFORE MAKING CHANGES TO PARTITION. For more information about MediaToolBox and how to partition your hard disk, please read the Quick-Start Guide of AmigaOS 4.1 at pages 21-22-23 and 24 (Hard Disk Setup with MediaToolBox).

3.2 Installing SLB

In order to dual boot AmigaOS 4.1 and Linux you must use the new SLB (Second Level Bootlader) available on the Amiga OS 4.1 update 1 CD. If it's not already installed on you hard disk, the following steps will guide you to install or update your current version. If you closed MediaToolBox then run it again, choose "**Normal**", select the hard disk where you wish to install Parthenope and click on "**Edit RDB/Reinstall...**". A new window will open. If you look at the bottom of this window you will see a section labelled "**AmigaOne boot code (SLB)**". Click on "Install" and choose the new SLB (the new version is located inside the "L:" directory of your AmigaOS 4.1 update 1 CD). Click "**Ok, accept changes**" and then "**Save to disk**" and close MediaToolBox.

4. Booting DEBIAN Install CD

Before starting the installation of Debian on your Sam, we suggest to unplug every USB device except keyboard and mouse, that's because in some very rare occasions the installer could lock up if USB mass storage is plugged in.

Insert the Debian CD on the CD/DVD-ROM reader and reset (hard reset) your computer. After the initial scanning of the device, stop the boot pressing the "RETURN" key. Enter the Uboot menu.

From the menu, change the bootdevice choosing "BOOT DEVICE" and "SII-4 SATA DVD". Now press the "ESC" key and choose "BOOT THIS CONFIGURATION". The Sam will reboot and CD/DVD-ROM reader will start to spin, after few instants you will see a menu and there you will be asked to select on which computer Debian will be installed. Now with the arrows keys select Sam or Sam-Flex and press "ENTER".

After a while you will see on screen the Debian installer. This section should give no problems at all, the installer will ask you to choose your language, your keyboard and after that, your hardware will be checked and your local network configured.

5. Partitioning the hard disk

When the first part of the installation process is finished, the hard disk partition program will be loaded. Choose "guided partitioning" and then "use the wider space available". This way 2 partitions will be created. The first one, formatted with the "EXT2" filesystem with a size of 40 Megabytes, will be called "dhx/boot" and will be the boot partition. The second partition, formatted with the "EXT3" filesystem, will allocate the remaining space.

If you would like to have also a "SWAP" partition, you have to delete the second partition and create two partitions. One partition will be used to install the operating system and all the applications (you can choose to use "EXT2" or "EXT3" filesystems). The other will become the "SWAP" partition and should have a size of one or two Gigabytes with a "SWAP" filesystem.

Now you will see on screen all the partitions available on your hard disk, both amiga and linux.

It's time to explain why we told you, on chapter 2, to create freespace at the end of your hard disk (do you remember the MediaToolBox setup ? ;-))

In our configuration there were already 7 amiga partitions, now after this setup, we have 3 new partitions, and they will be the number 8, 9 and 10 (if you created a SWAP partition). It is very important, now, that you understand that you will operate on the new partitions and they are the number 8 (the smallest one of 40 MegaBytes) and the number 9 (the biggest one). From now on, we will call them "SDA 8" and "SDA 9".

Now finish the partitioning process saving the changes on your hard disk. In this way you will create all the partitions above and the installation of Debian will start.

Please be patient as it will take a while before the installation is finished. Remember, this is a Net-Install and data will be taken also from the net.

After that, the installation will complete, the CD will be ejected and the word "OK" will appear on screen.

6. Post Installation - Configuring A1BOOT.CONF

If you choosed to install Parthenope no further steps are needed. After rebooting your Sam, you will see AmigaOS 4.1 update 1 and Debian together on the Parthenope menu.

Otherwise, if you choosed to use SLB you need to some other steps in order to be able to use your dual boot system.

After the installation is finished reboot your Sam.

Start the system with Amiga OS 4.1 update 1 again and check that everything is ok and the partitions were correctly created. If everything is fine, reset the computer with an hard reset and enter Uboot again. Setup the CD-ROM as bootdevice and insert Debian CD one more time.

Now repeat the installation process, running the CD to boot Linux. When you arrive at the installation setup screen press "ALT" + "F2" keys and enter the Linux console.

Press "ENTER" and write :

```
mount /dev/sdax /mnt (press "ENTER" at the end of every line)
cd /mnt
ls
```

Do you see the "x" on "sdax"? well, here you have to put the number of your smallest partition (the one of 40 MegaBytes). This will be used to create the boot directory. In our example it's the partition number 8.

Typing ls you should see this on screen:

```
parthenope lost+found menu.lst parthenope-install uImage
```

Now type :

```
mkdir boot
cp uImage boot
cd boot
ls
```

You should see

```
uImage
```

Now type :

```
nano alboot.conf
```

It will load a text editor, then type:

```
Debian /boot/uImage root=/dev/sdax console=tty0
```

Do you see the "x" instead of the number on "root=/dev/sdax"? Replace the "x" with the number of the biggest partition. In our example, it is the one of 40 GyaBytes (so sdax become sda9).

Press the "CONTROL" + "X" keys, press the "Y" key and type:

```
ls
```

You will see:

```
alboot.conf uImage
```

Eject the Debian CD and reboot the Sam. From now on, during the boot phase, you will see Amiga OS 4.1 update 1 and Debian together on the Uboot menu.

We suggest you to increase the boot menu selection delay for your ease of use.

Have Fun with Debian and Sam! :-)