

Install FreeBSD on an PCENGINES ALIX Boards

We will install FreeBSD on a PC to a Compact Flash card, using an external USB Card Reader. The installation process will be the same as for hard drive installation.

Step 1. Install FreeBSD to Compact Flash

Connect a USB card reader to your PC, boot from FreeBSD disk 1 installation CD and install FreeBSD to Compact Flash card.

Your Compact Flash card will be detected as da0 in FreeBSD.

Step 2. Modify FreeBSD Compact Flash Installation to Work For Your Alix Board

When install FreeBSD to Compact Flash, it will be installed on /dev/da0 device. But Alix sees the Compact Flash as ad0. So you will need to connect the Compact Flash card to a FreeBSD system, mount it and change in /etc/fstab every record that contains da0 into ad0.

```
mount /dev/da0s1a /mnt/root
edit /mnt/root/etc/fstab
```

(and change from da0 to ad0, every line that contains da0).

Step 3. Modify FreeBSD CF Installation to Work With Serial Port

On most Alix boards (all except the one that has Video card) the only way to configure FreeBSD (at least until you can access it via SSH) is through serial port. A default FreeBSD installation from your Compact Flash Card will boot using a video card, so it will not work on your Alix board (well it will still boot but you will not be able to see anything on serial console).

To add support for serial console to the Compact Flash FreeBSD installation to the following:

```
edit /mnt/root/boot/loader.conf
```

and add there:

```
console="comconsole"edit /mnt/root/etc/ttys
```

and on the line that begins with ttyd0 change off to on and dialup to vt100.

Comment all entries from /mnt/root/etc/ttys file that start with ttyv.

Then unmount the Compact Flash Card, connect the card to your PCENGINES Alix board and try to boot your Alix Card.

You should be able to see FreeBSD from your Compact Flash card booting and then you should be able to access console, via serial connection.

If after installation on compact flash your Alix will not boot in FreeBSD try to turn off packet mode:

```
boot0cfg -o nopacket da0s1
```

Other Tips

- To connect via serial port from a FreeBSD PC, use minicom application (found as port or package). After you've installed minicom, connect your PC serial port with Alix serial port using a nullmodem cable. If you do not have a serial port on your PC, you must purchase a Serial to USB adaptor.
- To connect via serial port from a Windows PC, use Hyperterminal.
- If you see weird characters instead of plain text when booting from Alix Board, then your terminal application (minicom or hyperterminal) is not set at the same speed as your Alix serial port. Both must be at the same speed (this is done by changing your terminal application connection speed).
- To access Alix bios and change speed of your terminal, press S, at boot time when Alix do memory tests.

e) It is available a PDF documentation at www.pcengines.ch, related to configuring Alix board. Read it!
<http://www.pcengines.ch/pdf/alix2.pdf>