

BKM for Installing CentOS Atom Platforms

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1 Introduction

This document explains the steps necessary to boot kernel 2.6.28.4 on Atom platform with the Poulsbo chipset (implies PATA hard-drive instead of SATA). Kernel 2.6.28.4 is pre-requisite for installation of the Arch Rock gateway server software on the chosen Atom platform. The techniques described here have been tested on both Portwell WEBS-2120-1600 and Kontron KTUS15W/mITX Atom platforms.

2 Platform Setup

2.1 Preparation

Download and install a working copy of Cent OS from

<http://mirrors.kernel.org/centos>

and boot with the default kernel.

Be sure to install the development tools and development libraries packages, as they are necessary to build a new kernel.

2.2 Download Kernel

Download the 2.6.28.4 kernel from kernel.org or the link below and place it on the machine in /usr/src.

<http://www.facebook.lkams.kernel.org/pub/linux/kernel/v2.6/linux-2.6.28.4.tar.gz>

Change into directory /usr/src and extract the kernel image:

```
[root@localhost ~]# cd /usr/src
[root@localhost src]# tar -xvf linux-2.6.28.4.tar.gz
```

Upload the 'atom-cfg' file to the system using your favorite file transfer method (SCP, FTP, etc.), and place it in /root.

Move the 'atom-cfg' file into the kernel source directory and rename it to .config:

```
[root@localhost ~]# mv atom-cfg /usr/src/linux-2.6.28.4
[root@localhost ~]# cd /usr/src/linux-2.6.28.4
[root@localhost linux-2.6.28.4]# cp atom-cfg .config
```

2.3 Compile and Install Kernel

```
[root@localhost linux-2.6.28.4]# make clean
[root@localhost linux-2.6.28.4]# make oldconfig
[root@localhost linux-2.6.28.4]# make -j 2 bzImage
[root@localhost linux-2.6.28.4]# make -j 2 modules
[root@localhost linux-2.6.28.4]# make -j 2 modules_install
[root@localhost linux-2.6.28.4]# make -j 2 install
```

2.4 Re-build initrd image

Next, rebuild the initrd image to contain the necessary module to control the Poulsbo System Controller Hub (SCH):

```
[root@localhost linux-2.6.28.4]# cd /boot
[root@localhost boot]# mkinitrd --with=pata_sch \
    -f initrd-2.6.28.4.img 2.6.28.4
```

You should now have an initrd image file that will load module 'pata_sch' during boot time.

To verify the module is included in the image file, execute the following command and look through the output for '/lib/pata_sch.ko':

```
[root@localhost boot]# gzip -dc initrd-2.6.28.4.img | pax
```

If you do not see the module listed here, it is likely something went wrong and your system will not boot with the 2.6.28.4 kernel.

If you do see the module, reboot and select 2.6.28.4 from the GRUB config.