

# HOWTO articles - Hardware

This section contains How-To articles for hardware drivers and configurations including virtualization and emulation platforms.



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## Architecture Specific HOWTOS

Page	Description
<a href="#">Slackware on ARM - HOWTO guides</a>	Slackware on ARM - HOWTO guides This section contains information about how to install Slackware on to a range of ARM hardware. The wiki pages on this site are intended for the community to help broaden the architecture support and collaboratively create and share the knowledge base.

## Overview of Hardware HOWTOS

Page	Description	Tags
<a href="#">Slackware 14.0 on an Acer Aspire One ZA3</a>	Slackware 14.0 on an Acer Aspire One ZA3 Slackware 14.0 easily installs on an Acer Aspire One ZA3, but X windows crashes. I found a fix that works from another Slacker. When Slackware 14.0 boots up log in as root and enter this command: # rmmmod poulso psb_gfx	<a href="#">howtos</a> , <a href="#">author</a> <a href="#">hitest</a>
<a href="#">Slackware ARM GCC aarch64-linux cross-compiler for the Raspberry Pi</a>	Slackware ARM GCC aarch64-linux cross-compiler for the Raspberry Pi Preface I was thinking about the Cortex-A53 64-bit CPU on my Raspberry Pi 3 and why I'm mainly using Slackware ARM 32 bit operating system on it. Then I started to wonder if it would be possible to build an arm64 kernel and modules to run with Slackware ARM. After reading about how this could be achieved it seemed clear that some cross-compiling would be required. Although I have some experience in building Linux kernels, espe...	<a href="#">howtos</a> , <a href="#">hardware</a> , <a href="#">aarch64</a> , <a href="#">cross-compile</a> , <a href="#">author</a> <a href="#">exaga</a>
<a href="#">ASUS eee PC HowTo</a>	ASUS eee PC HowTo Although this howto was written specifically for the ASUS 1005HA netbook, it may be ported to similar machines. With Slackware everything works pretty much out of the box for this Asus EEE-pc model. Function keys, however, are not enabled by default, which means additional configuration steps are required.	<a href="#">howtos</a> , <a href="#">asus</a> , <a href="#">eee</a>
<a href="#">Audio and snd-hda-intel</a>	Audio and snd-hda-intel Overview This HOWTO deals with issues related to sound cards which use the Intel HDA chipset. Do you encounter audio problems such as: * No sound? * Headphones work but speakers do not? * Speakers work but headphones do not?	<a href="#">howtos</a> , <a href="#">hardware</a> , <a href="#">snd-hda-intel</a> , <a href="#">audio</a> , <a href="#">author</a> <a href="#">allend</a>

<a href="#">Use BFQ IO scheduler</a>	<p>Use BFQ IO scheduler Budget Fair Queueing (BFQ) Storage-I/O Scheduler * Why do I want BFQ? -Seems to speed up disk based IO see the Source section for more info.  <a href="http://algo.ing.unimo.it/people/paolo/disk_sched/">http://algo.ing.unimo.it/people/paolo/disk_sched/</a> * First collect your existing kernel configuration. <code>zcat /proc/config.gz &gt; BFQ_CONFIG</code></p>	<a href="#">howtos</a>
<a href="#">Brother printer/scanner installation</a>	<p>Brother printer/scanner installation Brother makes a variety of printers and multifunction devices. There is a strong commitment to Linux support, but the driver packages are offered only in .rpm or .deb format. So what does a Slackware user do?</p>	<a href="#">howtos</a> , <a href="#">brother</a> , <a href="#">printer</a> , <a href="#">scanner</a> , <a href="#">installation</a> , <a href="#">author allend</a>
<a href="#">Chromebook Pixel</a>	<p>Chromebook Pixel This HOWTO covers installing and configuring Slackware (tested with -current/14.2) on a 2015 Chromebook Pixel. Older versions of Slackware (older kernel) and the 2013 Chromebook Pixel may run into issues. There are a couple main sources of information for running Linux on the Pixel (see</p>	<a href="#">howtos</a> , <a href="#">hardware</a> , <a href="#">installation</a> , <a href="#">chromebook</a> , <a href="#">pixel</a>
<a href="#">CPU-frequency scaling on Slackware</a>	<p>CPU-frequency scaling on Slackware Introduction CPU frequency scaling is carried out by the kernel, there are currently two main ways of thinking about CPU Frequency Scaling, and these are based on the frequency scaling driver which is in use. By default</p>	<a href="#">howtos</a> , <a href="#">cpu</a> , <a href="#">frequency</a> , <a href="#">laptop</a> , <a href="#">cpu frequency scaling</a>
<a href="#">DisplayLink</a>	<p>DisplayLink DisplayLink 3.0 Devices This HOWTO covers how to configure and install the DisplayLink driver (evdi) for USB 3.0 devices, and has been tested under Slackware 14.1 and newer. For older devices (e.g. USB 2.0), the udl driver should work with minimal configuration needed.</p>	<a href="#">howtos</a> , <a href="#">hardware</a> , <a href="#">displaylink</a> , <a href="#">evdi</a> , <a href="#">author matthew salazar</a>
<a href="#">Linux Multi-Queue Block IO Queueing Mechanism (blk-mq)</a>	<p>Linux Multi-Queue Block IO Queueing Mechanism (blk-mq) blk-mq (Multi-Queue Block IO Queueing Mechanism) is a new framework for the Linux block layer that was introduced with Linux Kernel 3.13 and has become feature-complete with Kernel 3.16. Blk-mq allows for over 15 million IOPS with high-performance flash devices (e.g. PCIe SSDs) on multi-socket servers, though even single and dual socket servers also benefit considerably from blk-mq.</p>	<a href="#">howtos</a> , <a href="#">blk-mq</a> , <a href="#">multi-queue</a> , <a href="#">io</a> , <a href="#">author lamerix</a>
<a href="#">GPS-devices</a>	<p>GPS-devices Overview GPS stands for Global Positioning System. GPS devices (also referred to as GPS receivers) provide the user with his/her geographic coordinates. GPS sport watches allow to save and export tracks, that is collections of geo-localized points describing the run or any movement that was done. This howto is based on experiences on Garmin Etrex Legend HCx (GPS device) and, on Slackware 15.0, on a Garmin Forerunner 205 (GPS sport watch); but it should also work at least for any Ga...</p>	<a href="#">howtos</a> , <a href="#">gps</a> , <a href="#">gpsd</a> , <a href="#">gpsbabel</a>
<a href="#">Hardware Diagnostics</a>	<p>Hardware Diagnostics This is an attempt to document symptoms, open-source diagnostic software, and solutions to hardware failure. DISCLAIMER: * Power off your computer, turn off the PSU, and unplug it. * Wear an antistatic wrist strap. * Ground yourself by first touching the PSU.</p>	<a href="#">howtos</a> , <a href="#">hardware</a> , <a href="#">software</a> , <a href="#">author htexmexh</a>
<a href="#">Nvidia Optimus</a>	<p>Nvidia Optimus Some laptops come with what is known as "nVidia Optimus" technology. This is an nVidia and Intel hybrid graphical processing unit (GPU); it is not two separate GPUs in one laptop. It uses nVidia graphics for performance and Intel graphics for power saving during basic usage. Unfortunately, until the release of version 435 in 2019, the closed-source proprietary drivers have not offered a means for adjusting or switching between the two.</p>	<a href="#">howtos</a> , <a href="#">software</a> , <a href="#">hardware</a> , <a href="#">nvidia</a> , <a href="#">author tommyc</a>

<p><a href="#">Multi CPU performance tuning</a></p>	<p>&lt;--Reviewed 20130113 by hazel --&gt; Multi CPU performance tuning The Linux SMP kernel (Symmetric Multi Processing - enabled in all 64-bit Slackware kernels as well as the 32-bit “-smp” kernels) does a good job of scheduling processes so that they take maximum advantage of your multiple CPU's or CPU cores.</p>	<p><a href="#">howtos</a>, <a href="#">hardware</a>, <a href="#">author alienbob</a></p>
<p><a href="#">Proprietary Graphics Drivers</a></p>	<p>Proprietary Graphics Drivers The X.Org X11 graphical system provides many drivers, supplying at least 2D video acceleration for most video cards; however, if a system is equipped with a GPU from AMD (ATI) or nVIDIA, proprietary binary drivers can be downloaded from the web sites of both these vendors and installed.</p>	<p><a href="#">howtos</a>, <a href="#">software</a>, <a href="#">nvidia</a>, <a href="#">author rinias</a></p>
<p><a href="#">Slackware installation using a serial terminal on an embedded system</a></p>	<p>Slackware installation using a serial terminal on an embedded system I'll describe here what steps are required to install Slackware to a machine, using a serial terminal. The boot medium used here is a usb-key, but I think that these steps could be customized for booting from a CD-</p>	<p><a href="#">howtos</a>, <a href="#">serial</a>, <a href="#">installation</a></p>
<p><a href="#">Sound Problems on Slackware</a></p>	<p>“”pavucontrol NOTE: on my systems, my default card is 1 and default device is 0 so I will use 1,0 through out this page Sound Problems on Slackware Investigate the problem * See which kernel modules are loaded: lsmod   grep snd Use this information along with your motherboard sound chipset to verify that the correct sound drivers are loading.</p>	<p><a href="#">howtos</a>, <a href="#">hardware</a>, <a href="#">sound</a>, <a href="#">also</a>, <a href="#">audio</a>, <a href="#">author arfon</a></p>
<p><a href="#">Set Up Sound Blaster Live! 5.1 &amp; Audigy Rx in Slackware</a></p>	<p>Set Up Sound Blaster Live! 5.1 &amp; Audigy Rx in Slackware This HOWTO is based on setup experience with following hardware: * Creative Labs Sound Blaster Live! 5.1 ( SB0060) * Creative Inspire T3100 2.1 Speakers * Intel DG965SS motherboard *</p>	<p><a href="#">howtos</a>, <a href="#">soundblaster</a>, <a href="#">live</a>, <a href="#">audigy</a>, <a href="#">rx</a>, <a href="#">wavetable</a>, <a href="#">soundbank</a>, <a href="#">soundfont</a>, <a href="#">sfxload</a>, <a href="#">author wisdraco</a></p>
<p><a href="#">Solid State Drives</a></p>	<p>Solid State Drives Installing Slackware 14.1 on a SSD drive While some of this could be performed after an installation (changing the LVM settings), I'll assume a new installation, because most parts can't be easily performed afterwards. Partition creation</p>	<p><a href="#">howtos</a>, <a href="#">ssd</a></p>
<p><a href="#">How To Sync Your System Time to Hardware Clock Consistently</a></p>	<p>How To Sync Your System Time to Hardware Clock Consistently Overview If you are booting multiple Linux distributions on the same machine, you might face the problem of inconsistent time zone settings across distributions. For example, assume you are dual-booting two Linux distributions, Distro X and Distro Y. You have set your BIOS hardware clock to show the local time.</p>	<p><a href="#">howtos</a>, <a href="#">time configuration</a>, <a href="#">local time</a>, <a href="#">system time</a>, <a href="#">time</a>, <a href="#">hardware</a>, <a href="#">author vharishankar</a></p>
<p><a href="#">Connecting to VirginMobile Broadband2Go with an Ovation MC760 USB modem</a></p>	<p>Connecting to VirginMobile Broadband2Go with an Ovation MC760 USB modem Using Network Manager 1) Plug in your modem. 2) Open the Network Manager “NETWORK CONNECTIONS” dialog. 3) Click “+ ADD”. 4) “CHOOSE A CONNECTION TYPE” ---&gt; “MOBILE BROADBAND</p>	<p><a href="#">howtos</a>, <a href="#">virginmobile</a>, <a href="#">broadband2go</a>, <a href="#">mc760</a>, <a href="#">author arfon</a></p>

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