Slackware ARM project web site | Forum | Slackware ARM development documentation | Slackware ARM installation guides

Installing Slackware on the RockPro64

	Target
Platform	AArch64/ARM64
Hardware Model	Rock Pro64
Document Version	1.05, Apr 2025
Author	Stuart Winter <mozes@slackware></mozes@slackware>
Contributors	Brenton Earl <el0226@slackware> (R&D for the RK3399 Hardware Models)</el0226@slackware>

Supporting the Slackware ARM Project

If you like what we're doing here, please consider becoming a patron.

Video Tutorial

This tutorial is also available in video form.



The video tutorial demonstrates the original installation approach where the Slackware installation media was separate. A single Slackware Installer image is provided that contains all of the media, so it's easier than shown in the video.

Pine64 also provide unboxing and setup videos which you may find useful.

Help / Support

Please post questions to the Slackware ARM forum.

Installation Lifecycle

The Installation consists of a number of distinct stages:

- 1. Acquiring all required hardware
- 2. Downloading and verifying the Slackware assets
- 3. Writing the Initialisation Bootware to the Micro SD card
- 4. Setup of the RockPro64 hardware
- 5. Initialising the RockPro64 with the Bootware
- 6. Writing the Slackware Installer to the Micro SD card
- 7. Booting the Slackware Installer
- 8. Installing Slackware
- 9. Completing the installation

- 10. Booting the Slackware OS
- 11. Post installation configuration and tweaks

Requirements

Hardware

Item	Specification	Notes
RockPro64	2GB RAM or 4GB RAM model	-
RockPro64 Power Supply ('PSU')	Pine64's own	There is a cheaper alternative, but this version is recommended. Note that the link here is for the EU version - a US version is also available in the Pine64 store
Micro SD Card	16GB minimum capacity , Class 10 (fast speed), good quality make	Used as Slackware's /boot partition
USB Multi-Card Reader	Must accept Micro SD cards	Used to write the Bootware on your host Linux computer. This isn't required if your host computer has a Micro SD card reader.
USB to Serial adapter	PL2303 chip. Other models may work, but this one has been tested. If your model has the option to set voltages, ensure 3volts is set!	Optional: This document covers installing using an HDMI monitor (you can find information about the Serial/UART adapter at the foot of this document), but a USB to Serial/UART adapter is recommended if you want to access the Boot Loader and Linux tty (serial line) remotely. The serial adapter is also required for developers needing to debug the boot process.
Jumper or Dupont cable	See images below	This is to bridge the pins required for initial firmware deployment and/or Hardware Model recovery
Wifi and Bluetooth module	Pine64's own	Optional
Heat sink and CPU fan	Pine64's own	Either a heat sink or fan are required. Some of the cases have built-in heat sinks, so check the options
SATA power cable	Pine64's own	Optional - depends if you use the SATA PCI card and choose to power the drives from the board (see notes below around stability)
Real Time Clock ('RTC') battery holder	Pine64's own	An RTC is used to keep the time when the Hardware Model is powered down. This is recommended but optional. Time can also be set via NTP once the OS has booted.

Hardware: Storage

This table provides a list of options that have been tested with Slackware AArch64 on the RockPro64 - you only need one storage controller.

Item	Specification	Notes
USB to SATA adapter	Many models will work, but this one has been tested.	For a simple installation you require either storage attached to a USB interface, or using a SATA PCIe card (see below).
PCIe dual port SATA 3.0 Interface Card	JMICRON+JMB582	Recommended 2-port SATA card
PCIe quad port SATA 3.0 Interface Card	MZHOU / Marvell chipset	Recommended 4-port SATA card
SATA storage / SSD	The Kingston-SA400S37-240G has thoroughly proved itself in the Slackware ARM build infrastructure - most build machines use these, but any SSD or spinning hard disk should work	Will contain the Operating System. You can install to other storage, but this documentation covers this particular configuration only.



PINE64 have their own dual port PCIe SATA controller but two of them have failed for this author, and as such cannot be recommended. For SATA it's recommended to use one of the two controllers in the table above.



When selecting a USB to SATA adapter it's best to choose one that is powered externally rather than from the USB port.

Notes on storage setup

The setup documented here (2.5" SSD connected to a USB-to-Serial adapter for power and data) has proven stable for this author.

However, powering spinning 3.5" SATA drives from the RockPro64 directly have resulted in instability of the hardware. This was resolved by powering the drives and CPU fan from an external power supply. The Slackware AArch64 primary build machines run with this power configuration and have proven stable over time.

eMMC

From the factory, your RockPro64 may contain an eMMC storage module. During the development of Slackware AArch64, it was found that the life span of these storage modules is short which makes them inappropriate for housing an Operating System. Whilst it's possible to use eMMC with Slackware, this documented installation process does not provide a supported path and the eMMC should be removed.

Computing / Network Environment

Item	Specification	Notes
	The Host Computer needs	This will be used to download
Host Computer: an Internet-	approximately 5GB free storage to	the Slackware distribution
connected computer running	download the required software assets.	from the Internet and write
an existing Linux distribution	You must be able to obtain <i>root</i>	the Slackware Installer to the
	access to this Host computer.	Micro SD card.

Hardware Setup

In this section we'll prepare the physical aspects of the RockPro64 to receive Slackware Linux.

1. Place the computer onto a non-conductive surface ready for setup

If you have a case, install the board into it. If you do not, it should be placed onto a non-conductive surface such as plastic, wood or rubber.



Remove eMMC storage module

In the image above you will see that the eMMC module has been removed (bottom right, left hand side of 'Head phones jack'). See the note above for the reasons behind this.

Gently prize the eMMC module from the board and store it some place safe as you may wish to experiment with it in the future.

If you are planning on using the RockPro64 as an 'embedded' device, the eMMC may be sufficient. However, for a regular OS upon which you will be reading/writing/updating, it has insufficient longevity for this author to recommend its use for Slackware

2. Connect the peripherals

Connect the CPU fan or heat sink



If you prefer hardware rather than software control for the fan over software, check out this video.

- Connect the Wifi & Bluetooth module (optional)
- Connect the storage (the image shows the USB-to-SATA adapter, but you may use the PCI card). If using the USB adapter, connect it to the **blue USB3.0 port**.
- Connect the Ethernet cable
- Connect the HDMI cable
- Connect the USB keyboard and mouse

The basic hardware setup is complete.



Software and Network Environment Setup

In this section, we'll prepare the Linux Host Computer to receive and download the Slackware assets required for the installation.

1. Downloading the Slackware Linux AArch64 Distribution and Installation Assets



The '\$' prefixes in the commands indicates the shell prompt - it's not to be typed/copied

Open a shell on the Linux Host Computer.

Prepare a directory to hold and serve the Slackware Distribution

We'll download the Slackware Linux distribution into a directory named 'slackware'.



The contents of this directory will be served via an HTTP server to the LAN (Local Area Network), so only place the Slackware assets here.

\$ cd ## returns to the root of your home directory
\$ mkdir slackware

\$ cd slackware

Determine where you are within the Host Computer's Filesystem

\$ pwd
/home/mozes/slackware



Note the directory location returned - you'll need this later

Installing the Slackware ARM GPG key

The Slackware ARM GPG key will be used to verify the Bootware and Slackware Installation images.

\$ curl -sSL https://www.slackware.com/infra/keys/arm/GPG-KEY | gpg --import
-

Set the version of Slackware AArch64 to download

At the time of writing, the only version available is 'current'.

\$ SLKVER=current

Set the Hardware Model

\$ HWM=rk3399_generic

Set the Internet media distribution server

If you are using a mirror server rather than the master Slackware ARM server, set it here. The format is: <hostname>::<rsync module name>

\$ SLKSRV=ftp.arm.slackware.com::slackwarearm

Download the Bootware

Note the period/full stop after the rsync commands - this instructs rsync to download to the current directory (it's not punctuation!)

The U-Boot Boot Loader that will be installed onto the SPI flash:

```
$ rsync -PavL $SLKSRV/platform/aarch64/bootware/recovery/rk3399/flash-spi-
rockpro64.img.xz .
$ rsync -PavL $SLKSRV/platform/aarch64/bootware/recovery/rk3399/flash-spi-
rockpro64.img.xz.asc .
```

The Bootware (recovery/initialisation) images are approximately 400KBytes in size.

Download the Slackware Linux Installer

```
$ rsync -PavL $SLKSRV/platform/aarch64/bootware/installer-
aio/slackwareaarch64-${SLKVER}/${HWM}-aio-slackwareaarch64-
${SLKVER}.img.xz.asc slkaio.img.xz.asc
$ rsync -PavL $SLKSRV/platform/aarch64/bootware/installer-
aio/slackwareaarch64-${SLKVER}/${HWM}-aio-slackwareaarch64-${SLKVER}.img.xz
slkaio.img.xz
```

The Slackware Installer images are approximately 5 GBytes in size.

Verify the Downloads

```
$ gpg --verify-files *.asc
```

The output should be similar to this:

```
gpg: assuming signed data in `flash-spi-rockpro64.img.xz'
gpg: Signature made Fri 27 Jan 2023 08:53:24 AM -00 using RSA key ID
1623FC33
gpg: Good signature from "Slackware ARM (Slackware ARM Linux Project)
<mozes@slackware.com>"
gpg: WARNING: This key is not certified with a trusted signature!
gpg: There is no indication that the signature belongs to the
owner.
Primary key fingerprint: 36D3 7609 2F12 9B6B 3D59 A517 F7AB B869 1623 FC33
gpg: assuming signed data in `slkaio.img.xz'
gpg: Signature made Thu 19 Jan 2023 08:34:27 PM -00 using RSA key ID
```

1623FC33
gpg: Good signature from "Slackware ARM (Slackware ARM Linux Project)
<mozes@slackware.com>"
gpg: WARNING: This key is not certified with a trusted signature!
gpg: There is no indication that the signature belongs to the
owner.
Primary key fingerprint: 36D3 7609 2F12 9B6B 3D59 A517 F7AB B869 1623 FC33



If you see 'BAD signature' you should re-download as it may have become corrupt. If this doesn't help, drop a note to the Slackware ARM forum

Write the Initialisation Bootware to the SD Card

Slackware stores the U-Boot Boot Loader firmware within the SPI flash of the Hardware Models that use the RK3399 SoC (including the Pinebook Pro, RockPro64 et al).

In this step, we'll write the Boot Loader firmware to the same Micro SD card that will later be used to contain the Slackware Installer, and subsequently the Slackware OS' /boot partition. If you have multiple Micro SD cards available, you may prefer to use separate SD cards; but this document assumes the availability of a single Micro SD card.

Elevate yourself to root

On your Host Computer, obtain root:

The # prefix indicates that you're using the **root** user - it's not to be typed in!

\$ su - ## Note the hyphen - it's required

Check what block devices are present

Prior to inserting the Micro SD Card into the USB adapter, we need to see what's already present within the OS so that we can easily locate our Micro SD card:

lsblk -d
NAME MAJ:MIN RM SIZE R0 TYPE MOUNTPOINTS
sda 8:0 0 465.8G 0 disk

As you can see, this Host Computer there is a single storage device - *sda*.

Now insert the Micro SD card into your USB Card Reader and connect the adapter to a free USB port on the Host Computer. Run Isblk again:

# lsbl	k-d					
NAME	MAJ:MIN	RM	SIZE	R0	TYPE	MOUNTPOINTS
sda	8:0	0	465.8G	0	disk	
sdc	8:32	1	58G	0	disk	
sdd	8:48	1	0B	0	disk	

As you can see, *sdc* is 58GBytes in size. This is the Micro SD card (in this example, it's labeled as '64GB' on the exterior of Micro SD card).

If your Micro SD card has existing partitions, you will not see them surfaced in this list - use *lsblk -b* to view them.



You'll also observe the presence of *sdd* - often the USB adapter itself obtains a block device. You can ignore this as it's 0Bytes.

Write the Bootware Initialisation Image to the Micro SD Card

Still as the **root** user, we'll switch to the directory to which the the Slackware assets have been downloaded (see earlier steps):

cd /home/mozes/slackware/

Write the Bootware Initialisation Image to the device identified as our Micro SD card. You'll then exit the root shell, returning to your usual standard user environment:



All data on this Micro SD Card will be erased! Ensure you have inserted the correct card!

```
# dd if=/dev/zero of=/dev/XXX count=10 bs=1M  ## Replace /dev/XXX with the
correct block device (presented above by the lsblk tool) on your Host
Computer
# xzcat flash-spi-rockpro64.img.xz > /dev/XXX  ## Replace /dev/XXX with the
correct block device (presented above by the lsblk tool) on your Host
Computer
# sync
```

Remove the Micro SD card from the Host Computer

Now that we've written the Bootware Initialisation Image to the Micro SD card, you need to remove it from the Host Computer.

Keep the root shell open as we'll be using it again in the subsequent steps.

Installing the Boot Loader to SPI flash

You need to perform this one-time step to flash a Slackware version of the U-Boot Boot Loader to the SPI flash of the RockPro64.

This is required if your RockPro64 is brand new out of the box, or has previously had another Linux distribution running on it.

If you reinstall Slackware you do **not** need to repeat this step, as long as the Slackware version of U-Boot remains within the SPI flash.

Bridge pins 23 & 25 to install Boot Loader to 'SPI flash'



- 1. Position the jumper/Dupont cable so that it links pin 23 (SPI_CLK_M2) and pin 25 (GND)
- 2. Insert the Micro SD card into the RockPro64's Micro SD slot
- 3. Connect the power to the RockPro64
- 4. Power on the RockPro64: hold down the Power button for 2 seconds (it may also auto-power on)



Do NOT connect any USB peripherals yet as these tend to cause the flashing process to hang

After a few seconds, you should see a message appearing on the screen - instructing you that the process will begin in 10 seconds' time.



Now remove the jumper/Dupont cable

The flashing process will begin and takes approximately 1 minute to complete.



Once the process completes, *hold the power button for approximately* **8** seconds. The RockPro64 will power off.

Write the Slackware Installer image onto the MicroSD card

Now that the Boot Loader has been installed to the RockPro64's SPI flash, we will install the Slackware Installer image onto the same MicroSD card.

- Remove the MicroSD card from the RockPro64
- Insert the MicroSD card back into the Host Computer (as in the earlier section)

Write the Slackware Installer to the Micro SD card

Follow the instructions in the previous section to determine which block device name it occupies.

Typically the block device will remain the same (in this tutorial it's /dev/sdc) but you should verify each time using **Isblk**.

The # prefix indicates that you're using the **root** user - it's not to be typed in!

Enter the directory into which the Slackware assets were downloaded previously:

```
# cd /home/mozes/slackware
# xzcat slkaio.img.xz | dd status=progress bs=4M iflag=fullblock of=/dev/XXX
## Substitute /dev/XXX with the correct block device
# sync
# exit
```

Remove the MicroSD card from the Host Computer

You may now disconnect the USB adapter from the Host Computer and remove the MicroSD card.

Run Isblk again to confirm that the block device assigned to the Micro SD card is no longer present:

lsblk -d

Last update: 2025/04/03 12:06 (UTC) slackwarearm:inst_sa64_rk3399_rockpro64 https://docs.slackware.com/slackwarearm:inst_sa64_rk3399_rockpro64

NAME MAJ:MIN RM SIZE RO TYPE MOUNTPOINTS sda 8:0 0 465.8G 0 disk

Logout from the root user

logout

You no longer require the Host Computer.

Installing Slackware

To proceed, you must have:

- Connected the storage to the RockPro64
- Connected the HDMI monitor
- Connected the keyboard (and optionally, mouse)
- · Inserted the Micro SD card containing the Slackware Installer

Encrypted storage

If you'd like to encrypt your storage, check the Disk Encryption Guide.

Begin installation



Power on the RockPro64

Press the Power Button for aproximately two seconds

After a few seconds, the you will see the following on screen:



It takes several seconds to load and boot the installer, and it may take several seconds more for any further output to appear on the HDMI monitor. The process of obtaining an IP address via DHCP can also delay the ability to interact with the Installer.

Once an IP address has been obtained, you will be presented with a prompt. Press ENTER



Set the keymap

<OPTION TO LOAD SUPPORT FOR NON-US KEYBOARD>

If you are not using a US keyboard, you may now load a different keyboard map. To select a different keyboard map, please enter 1 now. To continue using the US map, just hit enter.

Enter 1 to select a keyboard map: 1

KEYBOARD MAP SELECTION

You may select one of the following keyboard maps. If you do not select a keyboard map, 'us.map' (the US keyboard map) is the default. Use the UP/DOWN arrow keys and PageUp/PageDown to scroll through the whole list of choices.

ezerty/azerty.map
<pre>gzerty/be-latin1.map gzerty/fr-latin0.map</pre>
azerty/fr-latin1.map
azerty/fr-latin9.map
azerty/fr-old.map
azerty/fr.map
azerty/wangbe.map
(+) 68

OK, the new map is now installed. You may now test it by typing anything you want. To quit testing the keyboard, enter 1 on a line by itself to accept the map and go on, or 2 on a line by itself to reject the current keyboard map and select a new one.

1

Font size

If you're using a smaller monitor, such as one with a screen size less than 20 inches, it may be necessary to adjust the console font size to ensure that menus and other interface elements fit correctly on the screen. If so, type this into the shell prompt:

setfont ter-v18n

Set the date/time

Even if you have a battery pack for the RTC (Real Time Clock), the date on your system may be incorrect. We will sync the date from a highly-available NTP server:

ntpdate clock.akamai.com hwclock -w



Setup disk partitions

For this installation a basic partitioning scheme will be created.

Partition

Partition number	Device name	Size	Purpose
1	/dev/sda1	4GB	Swap
2	/dev/sda2	Rest of storage	OS root ('/') partition



/boot will reside on the Micro SD card and is automatically configured by the Slackware Installer

Open fdisk against the /dev/sda block device. In this guide, /dev/sda will be your primary storage, and in this guide is the SSD connected to the USB adapter.

fdisk /dev/sda



Clear an existing partition table: Press 'o' to clear the partition table

Command (m for help): o Created a new DOS disklabel with disk identifier 0xc32fb51d.

Create the Swap partition:

Type 'n' for new partition:



Type 'p' for primary partition type:

Press ENTER for the 'First sector'

Type '+4G' for the 'Last Sector'/size:

Change the partition type to 'Swap'. Type 't' then hex code '82':



Create the partition for the root filesystem ('/'):

Type 'n' for new partition. Press ENTER to accept the defaults - this will create partition 2 as the maximum size available.



Type 'a' to mark the root partition (number 2) as bootable Type '2' to select partition 2.



Type 'p' to print to view the partition table.

Last update: 2025/04/03 slackwarearm:inst_sa64_rk3399_rockpro64 https://docs.slackware.com/slackwarearm:inst_sa64_rk3399_rockpro64

Command (m Disk /dev/ Disk model	sda:	help): p 223.57 G 400537244	i B, 240057 4 0G	409536 byte	es, 468	362	128 se	tors
Units: sec	tors	of 1 * 5	12 = 512 by	vtes				
Sector siz	e (lo	gical/phy	ysical): 5:	12 bytes /	512 by	tes	5	
Disklabel	type:	dos		,				
Disk ident	ifier	: Øx9feb	5c33					
Device	Boot	Start	End	Sectors	Size	Id	Type	
/dev/sda1		2048	8390655	8388608	4G	82	Linux	swap
/dev/sda2		8390656	468862127	460471472	219.6G	83	Linux	

Type 'w' to write the partition table:

Command (m for help): w The partition table has been altered. Calling ioctl() to re-read partition table. Syncing disks.

root@slackware:~#

fdisk will now exit.

Load the Setup menu



Setup Swap partition





Select and format the partition for the OS' root file system





Boot Loader Configuration

The Installer will configure the Boot Loader and the OS' /etc/fstab automatically:





On the ARM platform, the Swap and root file systems are addressed by labels (*see above: 'LABEL='*) where as on x86/64 it's addressed by a direct reference to the block device (e.g. /dev/sda).

The swap partitions are labeled '*SLKswap*<*x*>', the root file system '*SLKroot*', and the /boot partition '*SLKboot*'.



The rationale behind this divergence is that on x86 the root file system is typically on a storage bus (SCSI, SATA, ATA), where the physical configuration (which port the storage is connected to) of the storage rarely changes. This can be the case on ARM, but it's generally to a lesser extent and the root file system may be connected to a hot-plug bus such as USB. This lends itself to the risk of device re-ordering across boot cycles (e.g. /dev/sda becomes /dev/sdb), causing boot failure.

Please be aware that the Slackware Installer *only* labels the swap and root file system. Therefore you are advised to manually label the file systems and modify the OS /etc/fstab accordingly. If you have only a single storage device and don't plan on adding more, you can use the settings that the Slackware Installer configures.

Select Source Media



Press ENTER to say 'Yes'.

If you would like to install from an alternate media source, pick 'No' and you will be presented with options to install over NFS, USB and HTTP amongst others.

Ordinarily you should always say 'Yes' unless you've been directed to do otherwise.

Package Series Selection

You can now choose the package sets to install. The recommendation is to install everything. A full Slackware installation will occupy approximately 15GB.



If you do not plan to use the graphical window manager such as KDE, you should deselect it.



Pick the 'terse' option:



The packages will begin installing:

A one-line description will be displayed as each package is installed.	
an Installing options series &	
so instanting package serves a	-
add_base-15.0-darch04-11 Hastic Linux Tilesystem package	000
100_g110C-S0110S-2.35-00rCH04-5: Shared GNU L 110ranies	120
wa_libraries-15.0-darch64-7: shared libraries needed by many programs	2004
aa_terminfo-6.3-aarch64-1: a basic collection of terminfo entries	[198K]
<pre>icl-2.3.1-aarch64-1: tools for using POSIX Access Control Lists</pre>	[388K]
cpid-2.0.33-aarch64-1: ACPI doemon	170K]
ttr-2.5.1-aarch64-1: tools for using extended attributes on filesystems	[250K]
ash-5.1.008.000-aarch64-1: sh-compatible shell	[8.3M]
in-11.1-darch64-5: some command-line utilities	180K]
trfs-progs-5.15-aarch64-1: Btrfs filesystem utilities	4.7M
zip2-1.0.8-aarch64-3: a block-sorting file compressor	[190K]
oreutils-9.0-aarch64-1: core GNU utilities	17M]
pio-2.13-aarch64-3: backup and archiving utility	1.34
pufreautils-008-aarch64-4: Kernel CPUfrea utilities	170KT
racklib-2.9.7-aarch64-2: password checking library	1.141
ryptsetup-2 4 1-aprch64-1: utility for setting up encrypted filesystems	2.641
hus-1 12 28-norrh64-4. D-Rus message hus system	1 841
cron-4 S-norch64-7: Dillon's Coon domon	1106
ave. 2.2 1. smethEd. 2: custom device files	5 040
iclos 1 3 20211107 complet 1: display dialog hover from shall estimate	51041
histog 1.3 courses an ensy of an angle of a section with EAT files where	2506
OSTSCOLS-4.2-OUTCHON-2. COULS FOR WORKING WITH PAT TILESYSTEMS	C S ONC
275Drogs-1.46.4-donch64-1: ext2/3/4 Tilesvstems utilities	3.9MI

Configure the Console Settings

If you plan on using the UART/'Serial' console, you should select 'No' here. If you plan on exclusively using an HDMI monitor, you should pick 'Yes'.

This setting can be reset to the default by editing /boot/extlinux/extlinux.conf and removing the 'console=' setting once the OS has booted



Remove the Slackware Installer from the SD card

The Micro SD card is transformed from being the Slackware Installer into the Slackware OS's /boot partition. At this stage, if the installation has worked for you (at certain points in the Slackware installer you are past the point of no return) you can delete the Installer. However, if something has gone wrong you can reset the RockPro64 and reboot the installer without having to re-deploy the Slackware Installer image from your Linux Host Computer.

Generally you should say 'Yes' here.



You may be tempted to retain the Slackware Installer, but note that the Installer contains Linux Kernel modules for the Kernel that the Installer was originally shipped with. This means that as soon as you upgrade the Slackware Kernel package, the Installer will fail to boot. The option to retain the Installer is present purely because on a number of occasions, this author only realised that the installation was incorrectly performed upon completion, and needed to reinstall. Retaining the Installer avoids the requirement to re-deploy the image to the SD card.

Install the Boot Loader to SPI flash

The initial Boot Loader flash performed earlier in these instructions typically contains an older version of the Boot Loader, where as the version packaged within the Installer contains the most recent version.

When an upgrade is required, in most cases you'll see a screen like this which provides information about the currently installed Boot Loader and the newer version available:

Hardware Model : System On Chip :	Pine64 RockPro64 v2.1	
Installed Boot Loader:	U-Boot 2021.02 (Oct 21 2022 - 12:57:0 U-Boot 2022.04 (Oct 21 2022 - 12:57:0	9 +0000) 9 +0000)
Boot Loader update ava	lable - flashing recommended	
Boot Loader update ava	lable - flashing recommended	
Boot Loader update ava Do you want to flash ti	lable - flashing recommended e available version now?	

If the installed Boot Loader matches the currently available version, you will be advised that flashing is unnecessary. However, you can re-flash it if you wish.

Hardware Model :	Pine64 RockPro64 v2.1
System On Chip :	rk3399
Installed Boot Londer:	U-Boot 2022.04 (Oct 21 2022 - 12:57:09 +0000)
Available Boot Loader:	U-Boot 2022.04 (Oct 21 2022 - 12:57:09 +0000)
Boot Looder is up to d	ate - flashing not required
Boot Looder is up to d Do you want to flash ti	ate - flashing <u>not required</u> he available version now?

If you proceed with flashing, the work flow looks like this and takes approximately two minutes to complete.



You must ensure the system has sufficient power/is plugged in. If the machine powers off before flashing completes, you would need to re-flash using the bootable SD card as described earlier within this guide.



Last update: 2025/04/03 slackwarearm:inst_sa64_rk3399_rockpro64 https://docs.slackware.com/slackwarearm:inst_sa64_rk3399_rockpro64

Post Installation Configuration

The Slackware Installer will walk you through the standard Slackware setup. The on-screen instructions will suffice.







Is this connect? Press 'Yes' to confirm, or 'No' to abandon.

< es >

CONFIRM STARTUP SERVICES TO RUN

< 141 >

The selected services will be started at boot time. If you don't need them, you may unselect them to turn them off (which may improve overall system security). You may also choose to start services that are not run by default, but be aware that more services means less security. Use the spacebar to select or unselect the services you wish to run. Recommended choices have been preselected. Press the ENTER key when you are finished.



Select a Console Font

It's recommended for the RockPro64 and Pinebook Pro that a larger console font is configured.

Last update: 2025/04/03 12:06 (UTC)	slackwarearm:inst_sa64_	_rk3399_	_rockpro64 https://docs.slackware.c	com/slackwarearm:inst_sa6	4_rk3399	_rockpro64
--	-------------------------	----------	-------------------------------------	---------------------------	----------	------------



CONSOLE FONT CONFIGURATION Would you like to try out some custom screen fonts?



The recommended font is 'ter-732b.psf'. This is the font used within the Installer.



Continue Post Installation Configuration







Configure GUI Window Manager

This author recommends using XFCE as it's light weight versus KDE.



Continue Post Installation Configuration



Slackware Setup Complete



Slackware Linux	setup is complete.	Setup is complete
You may now reb	oot your machine into	the Slackware OS.
If you have som can open a shel	e post-installation t 1.	weaks you'd like to make manually, you
If you want to Slackware OS, y	make some changes to ou may wish to power	the hardware before booting the off computer.
	Shel Rebo Powe	l ot r Off
81		

Generally you'll want to reboot into the OS.

However, if you are planning on setting up RAID or need to customise the Operating System Initial RAM Disk, you should select 'Shell'.

The Slackware OS will be found within '/mnt'. You can use the 'os-initrd-mgr' tool (Video tutorial).

Booting the Slackware OS

The Slackware Installer will reboot into the Slackware OS.

Login to the Slackware OS

You may now login as 'root', using the password you set within the installer.

Post Installation Configuration

There are a few post-installation configuration tasks to complete.

Add a plebeian user

You should add a plebeian (non-root) user using the 'adduser' tool.

This is documented here.

CPU fan speed

The CPU fan speed is controlled statically during boot.

By default it'll set the speed to '65' which is the lowest speed. If you want to change this:

As root, edit the Hardware Model run control configuration file:

vi /etc/rc.d/rc.platform.conf # or substitute 'vi' for your favourite
editor

Within that configuration you'll find examples. Un-comment and set accordingly and reboot.

If you do not have a fan (typically you'll have a heatsink instead) you can also disable the fan. Within the config file uncomment the variable CPU_FAN_OFF=Yes.

NTP (Network Time Protocol) setup

If your RockPro64 does not have an RTC battery backup, you may wish to configure it to set time from an NTP Server.

Managing Slackware on the RockPro64

Keeping the Slackware OS up to date

One of the preferred tools to keep your system up to date is slackpkg.

Upgrading the Kernel: In Slackware ARM, you simply upgrade the Kernel packages and reboot - no manual steps are required

Loading Additional Linux Kernel Modules within the OS Proper

Often Kernel modules for discovered hardware will be automatically loaded, but occasionally you will need to manually configure the loading of some modules.

/etc/rc.d/rc.modules.local

This file is a shell script that is run as one of the last steps before the OS has fully booted. You can enter modprobe commands here to load the specific modules you require.

Configuration files within the directory /lib/modprobe.d/ can be used to configure the parameters of the modules. Existing files within that directory serve as reference examples should you need them.

Loading Additional Linux Kernel Modules early in the boot sequence

There are a number of peripherals that may require Kernel modules loading early on in the boot sequence. An example of this would be RTCs (Real Time Clocks) or storage controllers that are required to access the file systems on which the OS lives.

Usually you won't need to load modules early in the boot sequence. See the previous section about loading modules from within the OS Proper.

To load Kernel modules during the early boot sequence, read:

/boot/local/README.txt

As root, the easiest way to begin is by renaming the example script:

mv /boot/local/load_kernel_modules.post.sample
/boot/local/load_kernel_modules.post

Then add the appropriate module loading commands to:

/boot/local/load_kernel_modules.post You can also add shell code here to initialise a
peripheral - writing something to the peripheral's Kernel interface, for example.

Use a graphical login manager

If you prefer to use a graphical login manager, you can configure the default runlevel as 4:

su -

Last update: 2025/04/03 slackwarearm:inst_sa64_rk3399_rockpro64 https://docs.slackware.com/slackwarearm:inst_sa64_rk3399_rockpro64

```
sed -i 's?id:3:?id:4:?g' /etc/inittab
reboot
```

Slackware repository partition

The Slackware Installer image contains a type ext4 partition labeled SLKins_aio-pkgs from which the packages are installed.

root@slackware:~# mount LABEL=SLKins_aio-pkgs /mnt/zip root@slackware:~# cat /mnt/zip/README.txt This file system contains the Slackware repository that is used during the installation of Slackware.

Once you've booted into your OS you can delete or change this partition if you wish, or perhaps you might like to retain it for future reference.

root@slackware:~#

Most users simply leave the partition alone, as it causes no issues.

Customising the Slackware Linux Kernel

If you'd like to customise the Linux Kernel, the easiest way is to follow the HOWTO guide and use the Slackware ARM Kernel build script to create new packages.

Reducing Boot Time

Slackware ARM ships with a generic OS InitRD (Operating System Initial RAM Disk - the environment that prepares the machine to boot the Operating System Proper), so as to support a wide range of Hardware Models.

However, this isn't the optimal setup once the Slackware OS has been installed because the generic OS InitRD typically exceeds 250MB, which in some cases can add several seconds to the boot time whilst it's loaded from the SD card.

The os-initrd-mgr (Operating System Initial RAM Disk Manager) tool has an option to synchronize the OS InitRD's Kernel modules with *only* those presently loaded within the Operating System.

To do this:

\$ su -c 'os-initrd-mgr --sync-loaded-kmods' - # note the final -

This option isn't the default, but you can make it so by following the instructions within /etc/os-initrd-mgr.conf.sample

This way when you upgrade the Kernel packages in the order described above, it'll automatically synchronize the modules.

os-initrd-mgr has a safety check to only proceed when the running Kernel and incoming Kernel are at the same major version and patch level.

For example, when running Linux 5.17.1, upgrading to 5.17.2 will work; but an upgrade of Linux $5.17.1 \rightarrow 5.18.1$ will require a reboot then to run os-initrd-mgr again to re-sync.

If at any point you want to revert to the generic OS InitRD, simply reinstall the a/kernel package (and unset the setting if you configured it in /etc/os-initrd-mgr.conf).

Installing extra Software

Slackware comes with a good base of software applications, but there are plenty more available in the Open Source Ecosystem.

The best way to add new software is to use the build scripts from SlackBuilds.org.

Managing the Boot Loader firmware

During the Slackware installation process, you are offered the opportunity to flash the Boot Loader to the SPI flash. Occasionally, updates will be made available to the Boot Loader to address bug fixes and provide improvements.

Slackware provides a package hwm-bw-rk3399 within the a series that contains the latest Boot Loader firmware and contains the bootloader-flash-rk3399 tool to manage the upgrade life cycle.

Upgrading the Boot Loader firmware

- 1. Upgrade to the latest available version of the package hwm-bw-rk3399 (using slackpkg as described within this document).
- 2. As root, run the bootloader-flash-rk3399 tool.

In this example we'll run the Boot Loader management tool as the root user using the su tool:

\$ su -c 'bootloader-flash-rk3399' - # You must include the trailing '-'

Last update: 2025/04/03 slackwarearm:inst_sa64_rk3399_rockpro64 https://docs.slackware.com/slackwarearm:inst_sa64_rk3399_rockpro64

character

When an upgrade is required, in most cases you'll see a screen like this which provides information about the currently installed Boot Loader and the newer version available:

Hardware Model	Pine64 RockPro64 v2.1	
System On Chip	+ rk3399	
installed Boot Loade	IV-Boot 2021.02 (Oct 21 2022 - 12:57:09 +0)	000)
wailable Boot Loade	n: U-Boot 2022.04 (Oct 21 2022 - 12:57:09 +0	000)
oot Loader update a	vailable - flashing recommended	
oot Loader update a o you want to flash	vailable - Flashing recommended the available version now?	

If you've wiped the Boot Loader from SPI flash or have installed a non-Slackware firmware build, you will see a screen like this where the existing installed Boot Loader is unrecognised:

landware Model :	Pine64 RockPro64 v2.1
System On Chip :	rk3399
Installed Boot Loader:	[Unknown / Non-Slackware release]
wailable Boot Loader:	U-Boot 2022.04 (Oct 21 2022 - 12:57:09 +0000)
loot Loader update ava	ilable - flashing recommended
loot Loader update ava To you want to flash th	ilable - flashing recommended he available version now?

If the installed Boot Loader matches the currently available version, you will be advised that flashing is unnecessary. However, you can re-flash it if you wish.

Hardware Model :	Pine64 RockPro64 v2.1
system On Chip :	rk3399
Installed Boot Loader:	U-Boot 2022.04 (Oct 21 2022 - 12:57:09 +0000)
Available Boot Loader:	U-Boot 2022.04 (Oct 21 2022 - 12:57:09 +0000)
Boot Loader is up to d	late - flashing <u>not required</u>
Boot Looder is up to d Do you want to flash t	date - flashing not required the available version now?

If you proceed with flashing, the work flow looks like this and takes approximately two minutes to complete.

You must ensure the system has sufficient power/is plugged in. If the machine powers off before flashing completes, you would need to re-flash using the bootable SD card as described in the initial installation instructions.

Using the Serial/UART adapter

This documentation discusses using the RockPro64 without the UART/Serial console.

If you'd like to use one, there are two that have been tested.

USB Serial Device converter: Prolific Technology Inc / PL2303

This image below shows the PL2302 (the Serial adapter listed in the Hardware table at the head of this document) connected to the RockPro64:

Last update: 2025/04/03 slackwarearm:inst_sa64_rk3399_rockpro64 https://docs.slackware.com/slackwarearm:inst_sa64_rk3399_rockpro64

USB Serial Device converter: FTDI / FT232RL

This is the model shown here.

Using the USB Serial Device converter on the Linux Host Computer

Once wired up, connect the USB end of the adapter into your Linux Host Computer, and use the following command.

This assumes that there are no other similar adapters occupying /dev/ttyUSB0. If so, you will need to adjust the device name accordingly (e.g. perhaps /dev/ttyUSB1).

screen -T screen-256color /dev/ttyUSB0 1500000

Known bugs and limitations

None presently.

Contributing to the Slackware ARM project

There are a plethora of ARM devices on the market which requires initial R&D and continuous testing. If you'd like to help Slackware support more ARM boards, please check out the documentation explaining how to get involved.

From: https://docs.slackware.com/ - **SlackDocs**

Permanent link: https://docs.slackware.com/slackwarearm:inst_sa64_rk3399_rockpro64

Last update: 2025/04/03 12:06 (UTC)