



USING NEWER RADEON CARDS WITH AMIGAOS ON SAM4X0 BOARDS

Dear Users,

there are a few things you need to know in order to use newer Radeon video cards with AmigaOS 4.1.

AmigaOS 4 was released a while ago and it came with an (now) outdated and limited Radeon driver. So, to use newer video cards, you need two things:

1. You need more recent Radeon drivers from A-EON.
2. You need to replace the old driver that came with AmigaOS 4.1.

First, you can find a list of Radeon cards and their chips at the following address: https://en.wikipedia.org/wiki/List_of_AMD_graphics_processing_units.

If you want to use Radeon cards with a Northern Islands or Southern Islands chip, you need to get the RadeonHD driver version 3.7, which is the latest version. To get this version, you can purchase the "Enhancer Software Release 2" from the AmiStore program at <http://www.amistore.net/>.

For newer RadeonHD cards, you will need the RadeonHD driver v5. This version includes dynamic power management and hardware video decoding, but it no longer supports older cards. You can find the driver v5 at <http://www.a-eon.com/?page=radeonhd>, but please note that the list of supported Radeon cards on the developer's website may be outdated. It is provided for reference purposes only. You can also check the compatibility of RadeonHD cards on this website: <https://hdrlab.org.nz/projects/amiga-os-4-projects/radeonhd-driver/radeonhd-driver-hardware-compatibility/>.

To use a RadeonRX card, you will need to purchase the RadeonRX driver from A-EON. Please note that this is not the same as the RadeonHD v5 driver. The RadeonRX driver is included in the "Enhancer Software Release 2".

Now, let's go through the steps to update AmigaOS 4.1 and modify the AmigaOS 4 configuration:

1. Updating AmigaOS 4.1 to use newer cards:
 - Since the Radeon driver in AmigaOS 4.1 is limited, you can boot AmigaOS 4.1 with an older Radeon card like the Radeon HD5450.

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- Then, you need to update the driver in AmigaOS 4.1.
 - Only after updating the driver, you can insert a more recent card and boot AmigaOS 4.
2. Modifying the AmigaOS 4 configuration:
- Modifying AmigaOS 4 requires changing your kickstart configuration.
 - Please note that this could be risky, as making a mistake could prevent AmigaOS 4 from starting.
 - If you're unsure about modifying your kickstart files, you can refer to this article: https://intuitionbase.com/static.php?section=en_boot-configurations.
3. For a trouble free experience:
- We recommend having a working USB key / SD card that you can boot from. This way, if something goes wrong when changing the AmigaOS 4 configuration on your hard disk, you can still boot from the USB key / SD card.
 - Don't underestimate the potential issues that could arise. Always try to boot from the USB key / SD card before making any changes to the kicklayout configuration on your hard disk.
 - On your hard disk, make sure to have different configuration settings so that you can install an older Radeon card and still be able to boot. You can create different configurations like:
 - LABEL AmigaOS 4.1 ... with the HD v3 driver AND RX driver
 - LABEL AmigaOS 4.1 v5 ... with the HD v5 driver AND RX driver(RX driver and RadeonHD v3 or, alternatively, v5 can be on the same config)
4. Changing the AmigaOS 4 configuration to use a RadeonHD:
- If you purchased the RadeonHD v5 driver, you can simply replace the Kickstart/RadeonHD.chip file with the driver you bought.
- This will allow you to boot with recent RadeonHD cards like the R7.
- Remember, the RadeonHD driver is not compatible with older models. So, if you think you may need to install an older card, it's recommended to create two separate configurations: one with version 3.7 and one with version 5 of the RadeonHD driver.



5. Changing the AmigaOS 4 configuration to use a RadeonRX:

- If you purchased the RadeonRX driver, you need to install the RadeonRX.chip file in the Kickstart directory and place the Firmware directory at the root of AmigaOS 4 partition.

You also need to add a line in the Kicklayout file like:

```
MODULE Kickstart/RadeonRX.chip
```

Make these changes in the first kickstart configuration, as Uboot does not support RX cards. So, you won't see anything on the monitor until you reach the start of AmigaOS 4.

Since you won't see anything, you need to modify the first configuration section, as it will be loaded during boot by default.

You can use the kicklayout example in the following pages as a reference for Sam460.

If you need more details, feel free to ask on public forums or reach out to us.

APPENDIX A – Kicklayout example for Sam460

```
; $VER: Kicklayout-Sam460 53.9 (8.11.2014)
;
; Kernel configuration for the Sam460
;
; This file describes how the "Kickstart" image should look like,
; i.e. it describes which modules should be pre-loaded and available
; at boot time.
;
;
; Format:
; ~~~~~
; The file lists one or more configurations.
;
; Each configuration starts with the LABEL keyword, followed by the
; name of the configuration. The name can be used to specify the
; configuration in the bootloader tool (see Documentation/kernel/
; bootloader.txt). Note that empty lines end one configuration and
; start the next, which means that you must be careful not to leave
; an empty line anywhere unless you are defining multiple configurations.
;
; Each configuration must have exactly one line with the EXEC keyword.
; This specifies the filename of the main kernel to use. This kernel is
; the absolute minimum required to boot. It contains, among other things,
; exec.library.
;
; The following lines define additional modules to be loaded into the
; kickstart image. Each of these lines starts with the MODULE keyword
; followed by the filename of the module.
;
;
; Configuration name
LABEL AmigaOS 4.1 Final RadeonHD v3
; Exec name
EXEC Kickstart/loader
;
; PPC native modules
;
MODULE Kickstart/kernel
MODULE Kickstart/FastFileSystem
MODULE Kickstart/SmartFileSystem
MODULE Kickstart/JXFileSystem
MODULE Kickstart/battclock.resource.kmod
MODULE Kickstart/bootmenu.kmod
MODULE Kickstart/bootimage
MODULE Kickstart/CDFFileSystem
```



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```
MODULE Kickstart/con-handler.kmod
MODULE Kickstart/console.device.kmod
MODULE Kickstart/diskboot.kmod
MODULE Kickstart/diskboot.config
MODULE Kickstart/diskcache.library.kmod
MODULE Kickstart/dos.library.kmod
MODULE Kickstart/elf.library.kmod
MODULE Kickstart/env-handler.kmod
MODULE Kickstart/FileSystem.resource.kmod
MODULE Kickstart/gadtools.library.kmod
MODULE Kickstart/graphics.library.kmod
MODULE Kickstart/hunk.library.kmod
MODULE Kickstart/input.device.kmod
MODULE Kickstart/intuition.library.kmod
MODULE Kickstart/it8212ide.device.kmod
MODULE Kickstart/keyboard.device.kmod
MODULE Kickstart/keymap.library.kmod
MODULE Kickstart/lsi53c8xx.device.kmod
MODULE Kickstart/newlib.library.kmod
MODULE Kickstart/nonvolatile.library.kmod
MODULE Kickstart/nvram.resource.kmod
MODULE Kickstart/ram-handler.kmod
MODULE Kickstart/ramdrive.device.kmod
MODULE Kickstart/ramlib.kmod
MODULE Kickstart/shell.kmod
; MODULE Kickstart/sam460sata.device.kmod
MODULE Kickstart/sii0680ide.device.kmod
MODULE Kickstart/sii3112ide.device.kmod
MODULE Kickstart/sii3114ide.device.kmod
MODULE Kickstart/sii3512ide.device.kmod
MODULE Kickstart/strap.kmod
MODULE Kickstart/timer.device.kmod
MODULE Kickstart/PCIGraphics.card
MODULE Kickstart/ATIRadeon.chip
MODULE Kickstart/RadeonHD.chip
MODULE Kickstart/RadeonRX.chip
; MODULE Kickstart/3dfxVoodoo.chip
; MODULE Kickstart/3DLabsPermedia2.chip
MODULE Kickstart/siliconmotion502.chip
MODULE Kickstart/petunia.library.kmod
MODULE Kickstart/usbresource.library
MODULE Kickstart/usbsys.device
MODULE Kickstart/hub.usbfd
MODULE Kickstart/bootmouse.usbfd
MODULE Kickstart/bootkeyboard.usbfd
MODULE Kickstart/massstorage.usbfd
MODULE Kickstart/uhci.usbhcd
MODULE Kickstart/ohci.usbhcd
MODULE Kickstart/ehci.usbhcd
;
; Additional contributions from ACube.
```

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```
;  
MODULE Kickstart/i2c.resource.kmod  
MODULE Kickstart/fpga.resource.kmod  
MODULE Kickstart/onchipmem.resource.kmod  
  
;  
; Update 1  
MODULE Kickstart/mounter.library  
  
;  
; Configuration name  
LABEL AmigaOS 4.1 Final RadeonHD v5  
; Exec name  
EXEC Kickstart/loader  
;  
; PPC native modules  
;  
MODULE Kickstart/kernel  
MODULE Kickstart/FastFileSystem  
MODULE Kickstart/SmartFilesystem  
MODULE Kickstart/JXFileSystem  
MODULE Kickstart/battclock.resource.kmod  
MODULE Kickstart/bootmenu.kmod  
MODULE Kickstart/bootimage  
MODULE Kickstart/CDFileSystem  
MODULE Kickstart/con-handler.kmod  
MODULE Kickstart/console.device.kmod  
MODULE Kickstart/diskboot.kmod  
MODULE Kickstart/diskboot.config  
MODULE Kickstart/diskcache.library.kmod  
MODULE Kickstart/dos.library.kmod  
MODULE Kickstart/elf.library.kmod  
MODULE Kickstart/env-handler.kmod  
MODULE Kickstart/FileSystem.resource.kmod  
MODULE Kickstart/gadtools.library.kmod  
MODULE Kickstart/graphics.library.kmod  
MODULE Kickstart/hunk.library.kmod  
MODULE Kickstart/input.device.kmod  
MODULE Kickstart/intuition.library.kmod  
MODULE Kickstart/it8212ide.device.kmod  
MODULE Kickstart/keyboard.device.kmod  
MODULE Kickstart/keymap.library.kmod  
MODULE Kickstart/lsi53c8xx.device.kmod  
MODULE Kickstart/newlib.library.kmod  
MODULE Kickstart/nonvolatile.library.kmod  
MODULE Kickstart/nvram.resource.kmod  
MODULE Kickstart/ram-handler.kmod  
MODULE Kickstart/ramdrive.device.kmod  
MODULE Kickstart/ramlib.kmod  
MODULE Kickstart/shell.kmod  
; MODULE Kickstart/sam460sata.device.kmod
```

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```
MODULE Kickstart/sii0680ide.device.kmod
MODULE Kickstart/sii3112ide.device.kmod
MODULE Kickstart/sii3114ide.device.kmod
MODULE Kickstart/sii3512ide.device.kmod
MODULE Kickstart/strap.kmod
MODULE Kickstart/timer.device.kmod
MODULE Kickstart/PCIGraphics.card
MODULE Kickstart/ATIRadeon.chip
MODULE Kickstart/RadeonHD-v5.chip
MODULE Kickstart/RadeonRX.chip
; MODULE Kickstart/3dfxVoodoo.chip
; MODULE Kickstart/3DLabsPermedia2.chip
MODULE Kickstart/siliconmotion502.chip
MODULE Kickstart/petunia.library.kmod
MODULE Kickstart/usbresource.library
MODULE Kickstart/usbsys.device
MODULE Kickstart/hub.usbfd
MODULE Kickstart/bootmouse.usbfd
MODULE Kickstart/bootkeyboard.usbfd
MODULE Kickstart/massstorage.usbfd
MODULE Kickstart/uhci.usbhcd
MODULE Kickstart/ohci.usbhcd
MODULE Kickstart/ehci.usbhcd
;
; Additional contributions from ACube.
;
MODULE Kickstart/i2c.resource.kmod
MODULE Kickstart/fpga.resource.kmod
MODULE Kickstart/onchipmem.resource.kmod

; Update 1
MODULE Kickstart/mounter.library
```

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