



AutoVIDC and AutoVIDC+ for software control of VIDC Enhancers

Introduction

AutoVIDC and AutoVIDC+ are relocatable modules that are used to control the clock speed that drives the VIDC chip which delivers the video output for the Archimedes range of computers. The software is intended to work with RISC OS 2 and RISC OS 3 up to version 3.11 and provides the ability to control up to two VIDC Enhancers (AutoVIDC+ required) to drive the VIDC chip at up to two or three different clock speeds including the original on board VIDC clock.

AutoVIDC is written and copyright by Andreas Barth (1995), Retro-Kit has special permission from Andreas Barth to distribute a modified version of AutoVIDC called AutoVIDC+. AutoVIDC+ is copyright by Paul Vernon (Retro-Kit) and Andreas Barth (2012).

The AutoVIDC and AutoVIDC+ modules are only suitable for use with Acorn Archimedes A300, A400, A400/1 and A3000 machines fitted with a compatible VIDC Enhancer.

How it works

AutoVIDC and AutoVIDC+ work in exactly the same way. They are loaded into memory and are activated when a MODE change occurs. When a MODE change is detected, AutoVIDC checks to see if the new MODE is configured as requiring a higher clock speed than a VIDC Enhancer supplies and enables the VIDC Enhancer by switching a pin on the Archimedes' internal Aux I/O connector to either on or off.

When the VIDC Enhancer is activated, it swaps out the original on board VIDC Clock signal and replaces it with its own clock signal. The VIDC Enhancer clock signal could be any higher rate speed suitable for VGA and SVGA screen mode generation but is typically either a 25.175MHz or 36.000MHz signal.

Differences between AutoVIDC and AutoVIDC+

There are few differences between AutoVIDC and AutoVIDC+, the primary difference is the ability to control two VIDC Enhancers with AutoVIDC+ using multiple pre-defined mode lists for 25.175MHz and 36.000MHz VIDC Enhancers.

AutoVIDC+ is also monitor type aware and can automatically deliver true VGA scan rates for re-mapped MODEs when the Archimedes is connected to a VGA or SVGA monitor.

AutoVIDC on the other hand, only has one MODE list defined and can control a single VIDC Enhancer which is typically a single 36.000MHz device.

AutoVIDC+ can be used to control a single 25.175MHz VIDC Enhancer or 36.000MHz VIDC Enhancer or it can control two enhancers fitted in tandem.

Installing AutoVIDC or AutoVIDC+

The AutoVIDC module can be installed in several ways. It can either be used directly from the supplied floppy disc which is bootable and loads the AutoVIDC+ module as the system boots.

Alternatively, the AutoVIDC module can be copied into the PreDesk folder of the Uniboot boot structure to cause it to be loaded early on in the boot sequence prior to the Desktop being launched.

If a suitable module is fitted that has a flash ROM on board, it is possible to add the AutoVIDC module to the ROM image so that the AutoVIDC module becomes active immediately after the Archimedes completes its POST function when powered on. This method of installation is the most advanced but provides VIDC Enhancer capabilities as soon as the machine has been turned on and so is preferable to the other installation methods.

AutoVIDC * commands

AutoVIDC

AutoVIDC has just two commands which allow the user to set which modes should use the VIDC Enhancer and to list all the modes showing which will enable the VIDC Enhancer if switched to.

AutoVIDCset – Allows the user to set a specific MODE or list of MODEs as requiring Enhancing or not.

AutoVIDCmap – Lists all the MODEs from 0 to 127 showing their current configuration.

AutoVIDC+

AutoVIDC+ allows the user to control three different MODE maps to control up to two VIDC Enhancers at the same time. There is a fourth MODE map which is non-configurable and comes into play for the enhancement of specific modes when the Archimedes is connected to a VGA monitor.

The reason for three configurable MODE maps allows the AutoVIDC+ module to use either a 25.175MHz and 36.000MHz VIDC Enhancer with MODEs that require different clock speeds depending on the requirements of the MODE whilst also being able to completely ignore specific MODEs allowing other compatible software such as CustomVDU to control the VIDC Enhancers as required when custom modes are defined.

AutoVIDCEnable - Enables the AutoVIDC+ software if it has been disabled.

AutoVIDCDisable - Disables the AutoVIDC+ software. All features are still available however, when disabled, the VIDC Enhancer is turned off and the AutoVIDC+ software ignores any MODE changes.

AutoVIDCTogglePOST – Toggles the RISC OS 3 VIDC Clock check that is performed in the RISC OS POST.

AutoVIDCStatus - Reports back the current MODE, Monitor type, VIDC clock speed, whether the RISC OS mode mapping is enabled or not and whether the VIDC POST check is enabled or not.

AutoVIDCIgnore - Allows the user to set a specific MODE or list of MODEs that are not controlled by AutoVIDC+.

AutoVIDCIgnoreMap - Lists all 128 MODEs and shows their current configuration.

AutoVIDC25set - Allows the user to set MODEs that require the 25.175MHz VIDC Enhancer.

AutoVIDC25map - Lists the MODE map current configuration for the 25.175MHz VIDC Enhancer.

AutoVIDC36set - Allows the user to set MODEs that require the 36.000MHz VIDC Enhancer.

AutoVIDC36map - Lists the MODE map current configuration for the 36.000MHz VIDC Enhancer.

AutoVIDCVGAmapping - Lists the MODE map configuration for the 25.175MHz VIDC Enhancer used only when connected to a VGA or SVGA monitor type. This map is used in conjunction with the standard 25.175MHz MODE map.

Configuring the MODE maps

Using any of the “set” commands allows the user to control each MODE map that AutoVIDC and AutoVIDC+ provide.

To configure a MODE to use a VIDC Enhancer uses the following syntax:

*AutoVIDCset <MODE₁>(+/-) <MODE₂>(+/-) ... <MODE_n> (+/-)

e.g.

*AutoVIDCset 31+

*AutoVIDCset 31-

*AutoVIDCset 31+ 29-

Default MODE maps

AutoVIDC

VIDC Enhancer enabled modes: 29 to 31

AutoVIDC+

Ignore MODE map

VIDC Enhancer is never enabled for modes: 127

25.175MHz

VIDC Enhancer enabled modes: 25 to 28

36.000MHz

VIDC Enhancer enabled modes: 29 to 31

VGA/SVGA Monitor only (25.175MHz)

VIDC Enhancer enabled modes: 1 to 15, 41 to 46