# 30Video GS Installation Guide

**Howdy! Thank you for purchasing my 30Video GS card! – zigzagjoe :)**

To install the card, follow these instructions carefully. **Please take care**: I am not responsible if you accidentally injure yourself or cause damage to your computer during the installation process. If you are at all uncomfortable with these procedures, please seek a qualified individual to assist you with the installation process.

## In the Box

1. 30Video GS PDS card
2. IO plate
3. VGA cable
4. 2x M3 Philips screw and nuts

**Optional Grayscale Kit**
1. CRT Neckboard
2. Grayscale wire harness
3. Nonconductive adjustment tool

## PDS Card Installation

⚠️ **Turn off and unplug your computer for at least 5 minutes before disassembling it.**
**Do not touch the analog board or CRT as it may remain charged after power is removed.**

1. Remove plastic programmer's switch, if present.
2. Using a long Torx T-15 screwdriver, remove the 2 screws near the IO area and 2 screws under the handle, then remove the rear of the case.
3. Remove the 3 screws securing the expansion port bracket to the chassis.
4. Install the VGA cable into the IO cover, if needed
5. Attach the IO cover to your expansion port bracket using the provided screws.
6. Plug the VGA cable into the connector labeled "VGA" on the PDS card.
   a. ⚠️ **Connector only fits one way**!
7. Seat the card **carefully** into the PDS slot on the motherboard.
   a. It may take some force, but it should seat smoothly.
   b. Ensure the logic board is entirely forward in the chassis rails if the card does not seem to be seating correctly. Check that no pins have become bent and nothing is stuck in your PDS slot.
8. **If you have the grayscale kit:** proceed to the grayscale kit installation instructions on following pages.
9. Attach the expansion port bracket to the chassis.
10. Remove the plastic IO port cover from the rear case by carefully pushing on it.
11. Reinstall the rear case, and tighten the 4 screws.



plugs into video card vga connector

30Video GS

SE/30 Expansion Port Bracket
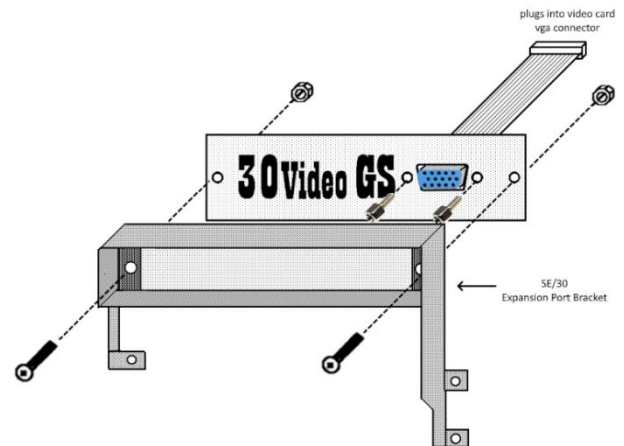
## Stacking cards

You may stack an additional PDS card on top of the 30Video card. 30Video should always be the first card in the PDS slot, unless using an accelerator, in which case 30Video should be the second card. When installing a second card, carefully bend the chassis card support tabs away from the cards so they do not make contact, and cover the tabs with insulating tape. 30Video supports slots ID **9** and **A**, selectable by slide switch on the card.

**Please note:** Most systems should be able to support two cards, however, any additional cards are not guaranteed to work and can cause system instability / inability to boot.

# Usage

**No software is required to use the card – it's plug-and-play!**

Connect a VGA cable and monitor to the VGA connector **prior to turning system power on**. Do not plug VGA in while the system is powered. Your monitor will be detected and turn on shortly after system boot.

**If the grayscale harness is installed**, the internal screen will have 256 shades of gray available <u>while an external monitor is not connected</u>. Some games work better in color modes; you may use any color mode as colors will be mapped to correct shades of gray. You can connect an external monitor *before powering the machine on*; the internal screen will revert to black and white while using the external monitor.

**To change the active resolution**, open Monitors control panel, select the 30Video monitor icon, and click the <u>Options</u> button. Pick the new resolution, then reboot your system. This will work on System 6.0.8+. Changing resolutions is not supported when internal grayscale is active.

**Gamma correction**: VGA monitors will default to a linear gamma appropriate for **LCD** monitors. In grayscale mode, the internal screen will default to an appropriate correction table for the SE/30 CRT.

You may change the active gamma table by opening the Monitors dialog and holding the option key while clicking the <u>Options</u> button. A linear (uncorrected) and CRT table are provided for both external VGA and internal grayscale modes. Additional gamma tables can be created using third party software.

**Other Notes**

- While 256 shades of grays are supported on external VGA monitors, only 16 shades of gray will be available. This is normal, and there is not a workaround. This limitation does not apply to internal grayscale.
- While using netBSD or MacsBug with internal grayscale, you may notice that the right margin of the display has turned on and has white or random contents. While strange looking, this is not harmful.

## Compatibility notes

No compatibility issues are known at the time of writing this document.

- Supports System 6 - 8.1, A/UX (3.0, maybe others), netBSD
- Works with acclerators: Tested with Carrera 040, Interware Booster SE30-50F, DiimoCache 030
- Compatible with IIsi, SE/30, and third party ROMs in either 24 bit or 32 bit mode.
- **Extremely** recommended to have a recapped logic board and recapped or retrofitted power supply.

## Reporting issues

I've done the best I can to test this card thoroughly, but bugs are always possible. Please report any issues through this github repository. Updated firmware and flashing utilities will be posted here as well, and please feel free to ask questions.

**https://github.com/ZigZagJoe/30Video-Support**

**🖥 Happy Macing!! :)**

## Grayscale Kit Installation

> ⚠️ **CAUTION: The CRT should be discharged before proceeding as it can retain charge while off!**
> **The CRT neck is very fragile. USE EXTREME CAUTION while working around the CRT neck.**
> **All connectors have a latch on them. Release the latch before pulling on the connector.**

1. Disassemble the machine and install the PDS card as directed above.
2. Remove the upper-right torx screw securing the CRT to the frame to free the neck board's grounding lug.
3. With utmost caution, pull the apple neckboard straight off the back of the CRT tube
   **DO NOT ROCK, WIGGLE, OR TWIST THE BOARD!! YOU WILL BREAK THE CRT!**
4. Unplug the connector from **P4** on the analog board. The neckboard can now be removed from the machine.
5. Unplug the logic board cable from the logic board and unplug it from the analog board, then remove it.
6. You are now ready to install the grayscale harness.
7. Connect harness **J2** to **P4** on analog board (where stock logic board cable plugged in)
8. Connect harness **J3** to **P2** on analog board (where stock neck board cable plugged in)
9. Connect harness **J1** to **J12** on logic board
10. Reinstall the torx screw securing the CRT to the frame with the longer of the grounding cables attached to J5.
11. Attach **J5** to the new neckboard.
12. **With care,** seat the new neckboard onto the CRT neck. **DO NOT ROCK OR WIGGLE THE BOARD!**
13. Attach **J4** to the 30Video GS card seated in the PDS slot.
14. Reinstall the IO bracket to the chassis, <u>with the last grounding lug under one of the screws to the frame.</u>
15. Proceed to adjust the cutoff, then re-assemble your computer.
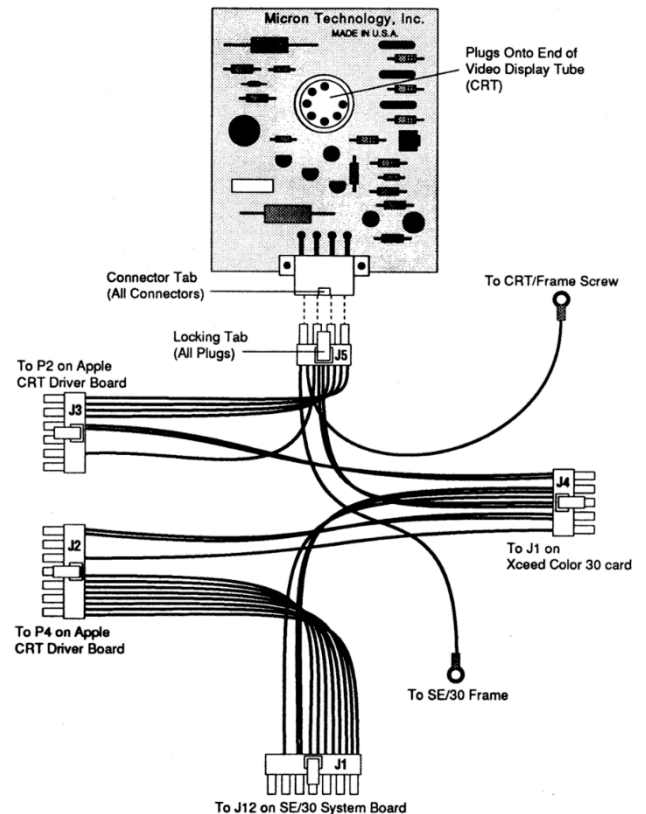


## Grayscale Cutoff Adjustment

> ⚠️ **CAUTION: DO NOT TOUCH ANY METAL SURFACE INSIDE THE COMPUTER WHILE POWERED ON.**
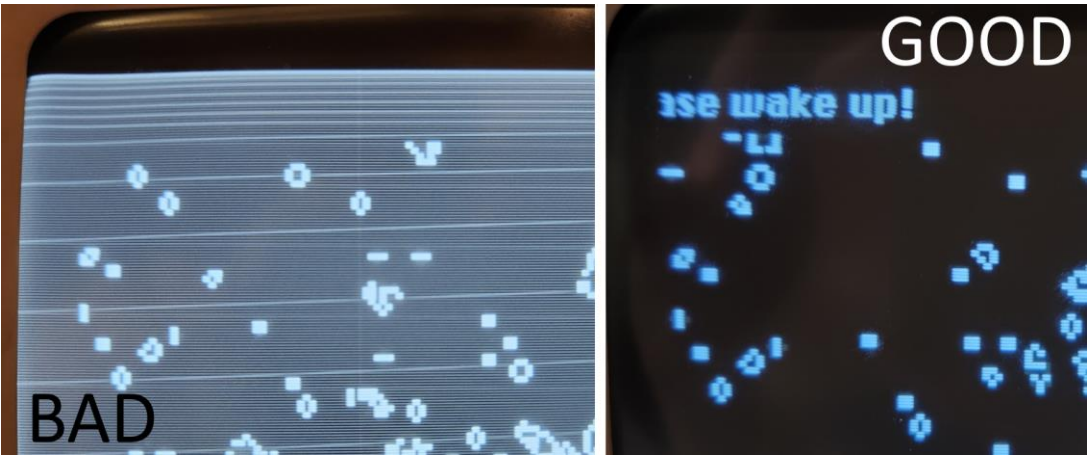
1. Power on your computer <u>with the back removed</u>.
2. Verify you have 256 shades of gray available in the Monitors control panel, but leave in B&W mode. Put something with high contrast on the screen. Allow machine to run for 5 minutes to warm up.
3. Adjust the external brightness control to maximum brightness.
4. **Using the provided nonconductive adjustment tool,** adjust the cut-off control located on the side of the analog board until brightness is to your preference. Stop before retrace lines (zigzag lines across the screen) become visible and black sections of the screen should remain dark. See figures on following page.
5. **Using the provided nonconductive adjustment tool,** adjust the potentiometer **RV1** on the right side of the neckboard to just before fine detail / text begins to "smear". Open other apps/windows & switch to 256 gray mode and verify no smearing appears, if so, reverse the potentiometer until it goes away.
6. The CRT should not require further adjustments if it was in adjustment prior to installation. If picture size/position adjustments are required, please see Apple documentation for these procedures.

*Main Cutoff Location*
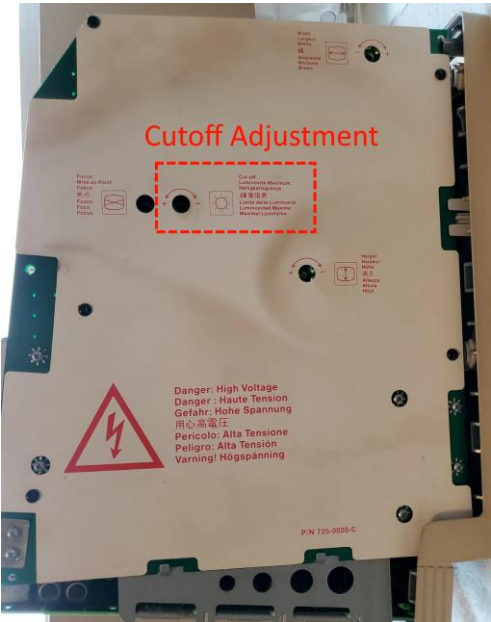


*Main Cutoff Adjustment*



*Neckboard adjustment*