X68000 SxSI-SCSI HDD Image Install Guide

REV. B

FOR v3.XX

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--- ABOUT THIS GUIDE ---

This install guide was created to help new users install the SxSI-SCSI HDD image on their X68000 systems (minimum 2MB RAM). Due to the partition structure of v3.00 and all versions going forward, some extra configuration in SCSI2SD is required. This guide will show the steps needed to get the SxSI-SCSI HDD Image running on the following devices:

XM6 Type-G Emulator for Windows
SCSI2SD
BlueSCSI v2
Henkan Bancho Pro
ZuluSCSI

Please follow the steps needed for your setup. Other devices may also work but are not covered in this guide. Adapt this information to your specific use case. This is a work in progress and will be updated as frequently as possible to cover all possible configurations.

This guide and the HDD image are to be used at your own risk. I will not be held responsible for any damage you may cause to your X68000.

--- WHERE TO DOWNLOAD ---

The SxSI-SCSI HDD Image is updated regularly and currently hosted on Google Drive.
Use the following links to download:

Current Version:
https://drive.google.com/drive/folders/1sjC4JmQBcGlu4c1GhxDII78TBJ61LWHp?usp=drive_link

Previous Version:
https://drive.google.com/drive/folders/1B2Ur9Sy3yDValjpJfY6qOWiHtxNT0fzG?usp=drive_link

Archived Versions:
https://drive.google.com/drive/folders/12lQ0dJOkKx2pzmXzOkcLCO93MomRC9D6?usp=drive_link

[Current Version] is the recommended link to use and will have the most up to date release available. The instructions printed in this guide assume you are using the files in the Current Version folder. Please download the files specific to your setup to make installation easier.

Support and links to the current version are also found on the nfg forums:
https://nfggames.com/forum2/index.php?topic=7231.0

Here are some links to other applications used in this guide:

SCSI2SD Files (For SCSI2SD versions prior to v6):
http://www.codesrc.com/files/scsi2sd/latest/

WinImage:
https://www.winimage.com/download.htm

Win32DiskImager (Alternate SD image writing software):
https://win32diskimager.org

XM6 Type-G (BIOS files needed to use):
http://retropc.net/pi/xm6/index.html#download

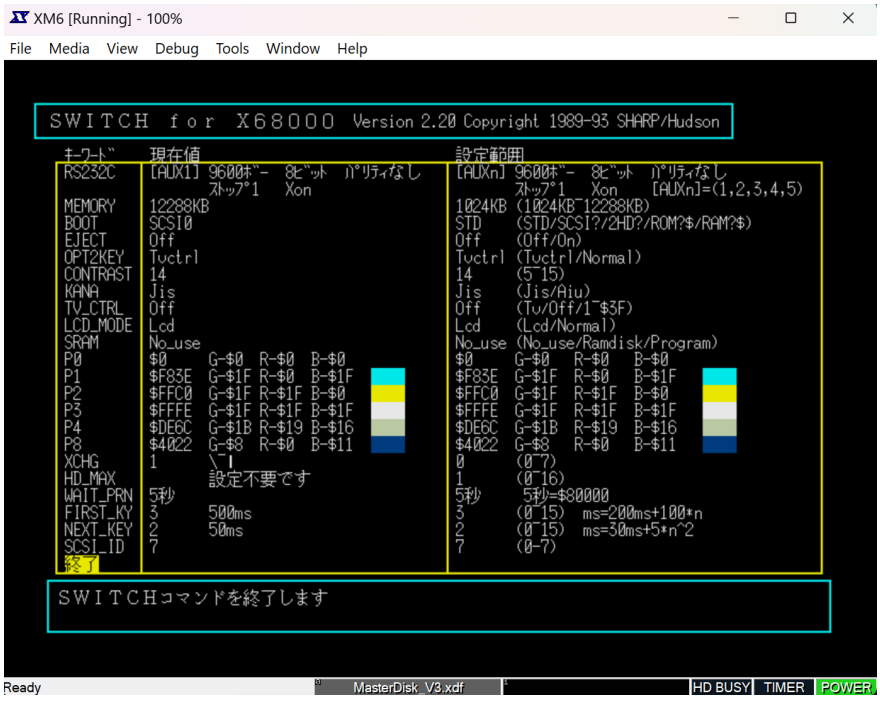
Master Disk V3 (Boot disk and SxSI drivers for SASI machines):
https://nfggames.com/X68000/Misc/Drivers/SxSI%20V5%20with%20DMA%20patch%20Translated%20by%20Eidis/MasterDisk_V3.zip

--- INSTALL GUIDE – XM6 Type-G (Windows) ---

1. Download the HDD Image files located in the HDS folder, and extract to a location on your PC. You should have 4 files that look like this naming structure:

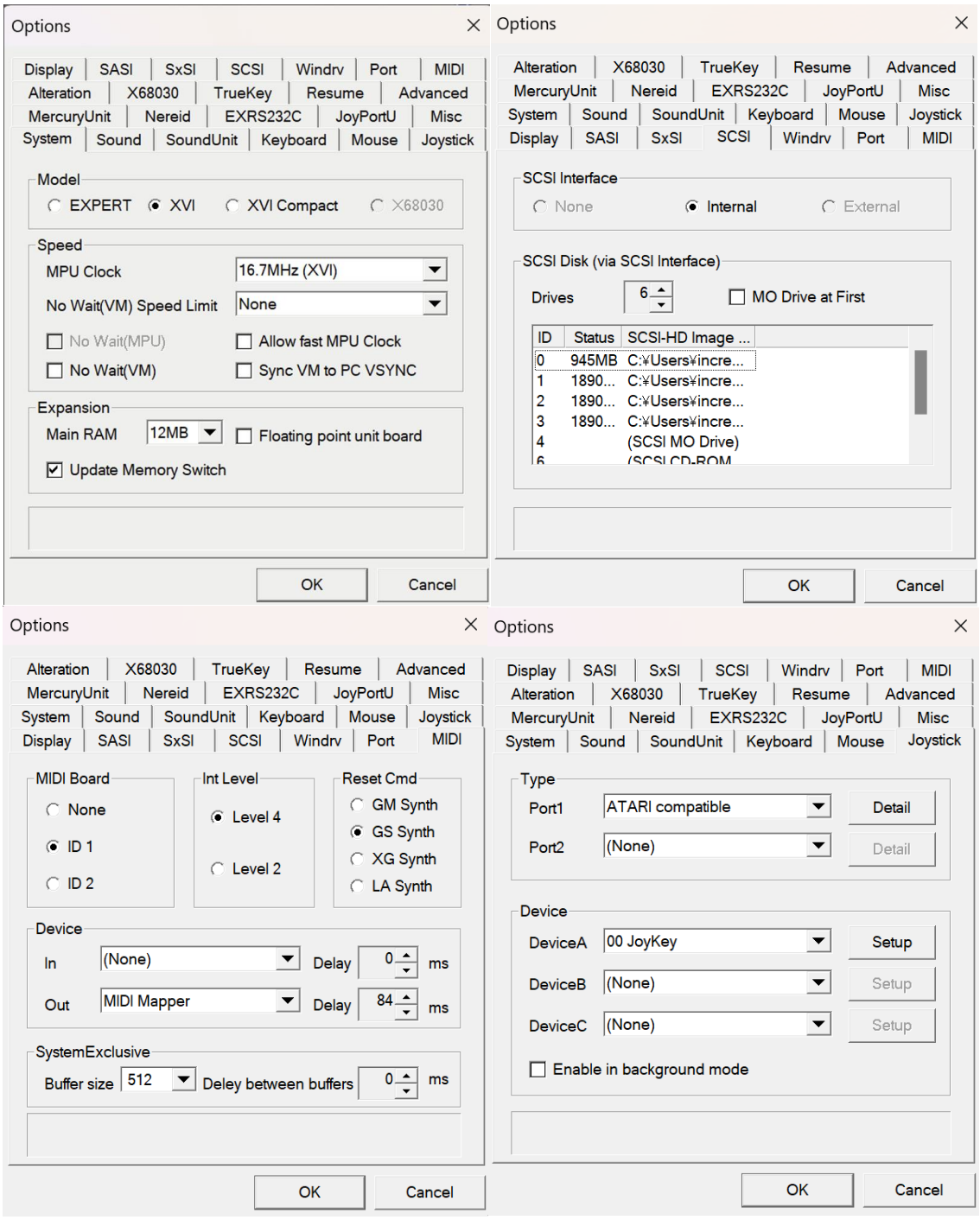
   SxSI-SCSI_vXXX_diskN.hds

   Where XXX is the current version of the HDD image release, and N is the numbered disk (1-4)
2. Install XM6 Type-G. (NOTE: Other versions of XM6 may not work properly with this image)
3. Configure XM6 as a SCSI-based system. I used the BIOS files to set up XM6 Type-G to the equivalent of an X68000 XVI.
4. Boot into a Human68k environment either with a floppy boot disk or another hard disk image.
5. Load SWITCH.X and use the following settings:



6. Exit SWITCH.X and save the configuration settings.
7. Use the following settings to set up your emulator environment and select the HDD images for your SCSI devices. They should be set up in order by disk number. For example:
   SCSI ID 0 – disk1.hds
   SCSI ID 1 – disk2.hds
   SCSI ID 2 – disk3.hds
   SCSI ID 3 – disk4.hds

See screenshots below for example settings in XM6 Type-G



8. Remove any floppy disks from the virtual drives and reboot your X68000 system in the emulator. You should now be booting to the HDD Image.
9. Install complete, enjoy!

NOTE: After booting machine from SCSI0, you can edit SWITCH.X to set STD as BOOT. The system will then boot from your HDD default and will boot from floppy if a disk is inserted. Alternatively, you can hold OPT.1 when starting to boot from a floppy disk.

--- INSTALL GUIDE – Setting Up X68000 ---

1. Before installing the SxSI-SCSI HDD image, you will need to set up the boot process on your X68000. For SCSI systems, proceed to Step 2. For SASI systems, proceed to Step 6. Either way, make sure your SRAM battery is working.
2. To set up using SCSI, boot into a Human68k environment either with a floppy boot disk or another hard disk image.
3. Run SWITCH.X and set the BOOT option to SCSI1:

NOTE: SCSI1 was used to simplify the install process across SASI/SCSI machines.

4. Exit SWITCH.X and save the configuration to SRAM.
5. Your SCSI X68000 is now ready for the HDD image. Use the section of the Install Guide based on your hardware. If your hardware was installed correctly, your system would now boot to LHES.

   NOTE: After booting your X68000 from SCSI1, you can edit SWITCH.X to set STD as BOOT. The system will then boot from your HDD default and will boot from floppy if a disk is inserted. Alternatively, you can hold OPT.1 when starting to boot from a floppy disk.

6. To setup SxSI drivers on your SASI machine, you need to boot your system using the Master Disk V3.

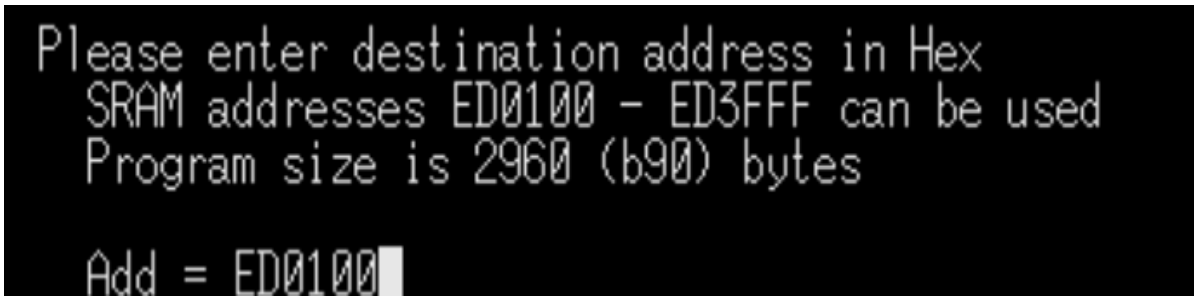
   NOTE: Writing a physical floppy or finding another means of booting floppy disks falls outside the scope of this Install Guide. Please consult the NFG forums or X68000 community for assistance in obtaining a bootable floppy. MasterDisk_V3.XDF image can be downloaded at the following link:

https://nfggames.com/X68000/Misc/Drivers/SxSI%20V5%20with%20DMA%20patch%20Translated%20by%20Eidis/MasterDisk_V3.zip

7. After booting the Master Disk, navigate to the SxSI folder and run bootset.x. Type these commands on the Human68k command prompt:

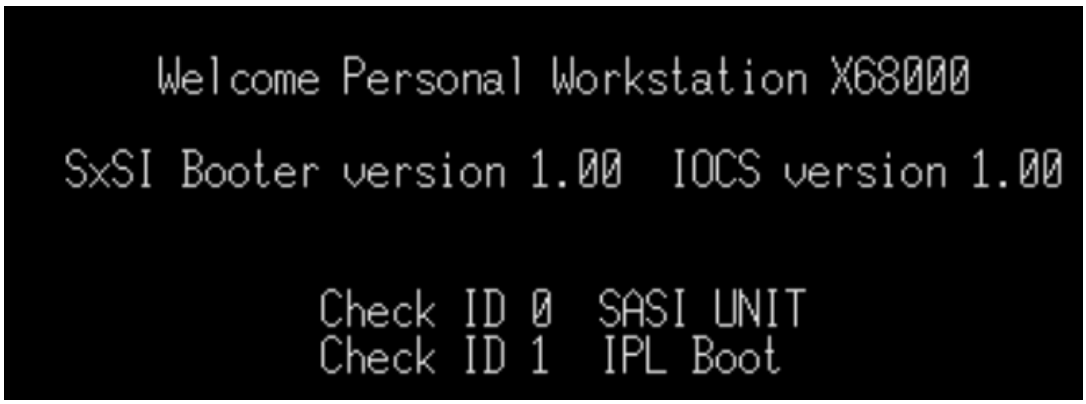
   cd sxsi
   bootset.x

8. You will be prompted to enter an area of SRAM to write the bootloader.
   Type ED0100 and press Enter



9. You will then be prompted to enter a startup time in seconds. Enter a number from 1-9 and press enter. Default is 7, in the example below 4 is used:

10. bootset.x will notify you that the SxSI-IOCS boot program has been installed.
11. Remove the Master Disk and power down your system.
12. Your X68000 is now ready for the HDD Image. Use the section of the Install Guide based on your hardware. When you power on your X68000, you should see the SxSI bootloader:



If the hardware was installed correctly, your system would now boot to LHES.

NOTE: After booting your X68000 from ROM $ED0100, you can edit SWITCH.X to set STD as BOOT. The system will then boot from your HDD default and will boot from floppy if a disk is inserted. Alternatively, you can hold OPT.1 when starting to boot from a floppy disk.

--- INSTALL GUIDE – SCSI2SD (Windows) ---

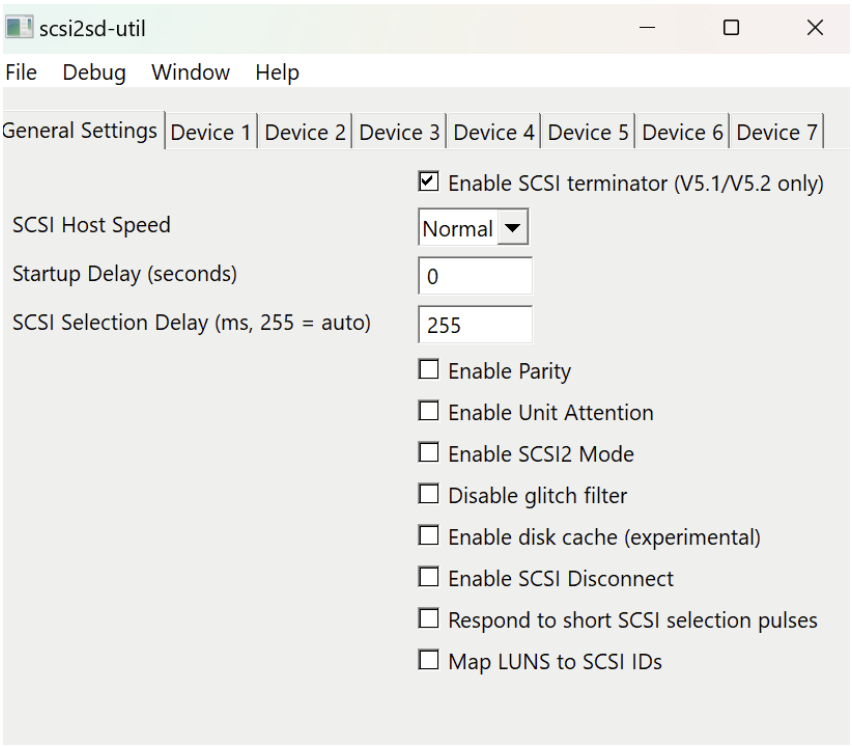
NOTE: The following guide is for a SCSI2SD v5.2. Newer versions than this may not be compatible with X68000.

1. Download the HDD Image files located in the SCSI2SD folder and extract them to a location on your PC. You should have 2 files that look like this:

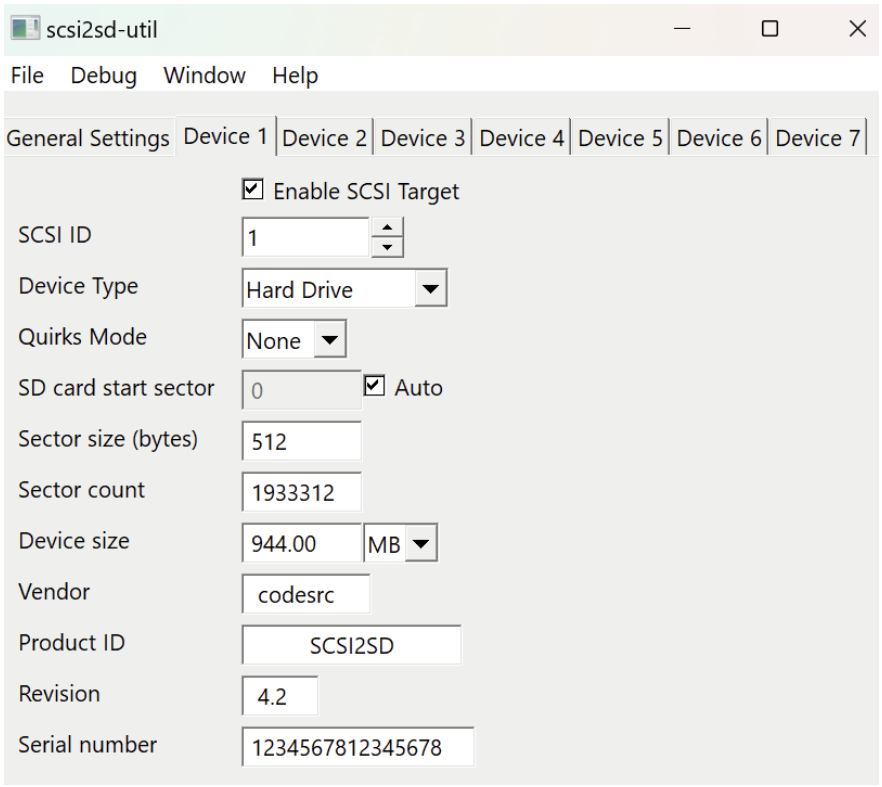
   SxSI-SCSI_SCSI2SD_CONFIG.xml
   SxSI-SCSI_SCSI2SD_vXXX.ima

   Where XXX is the current version of the HDD image release
   (ex. SxSI-SCSI_SCSI2SD_v300.ima)

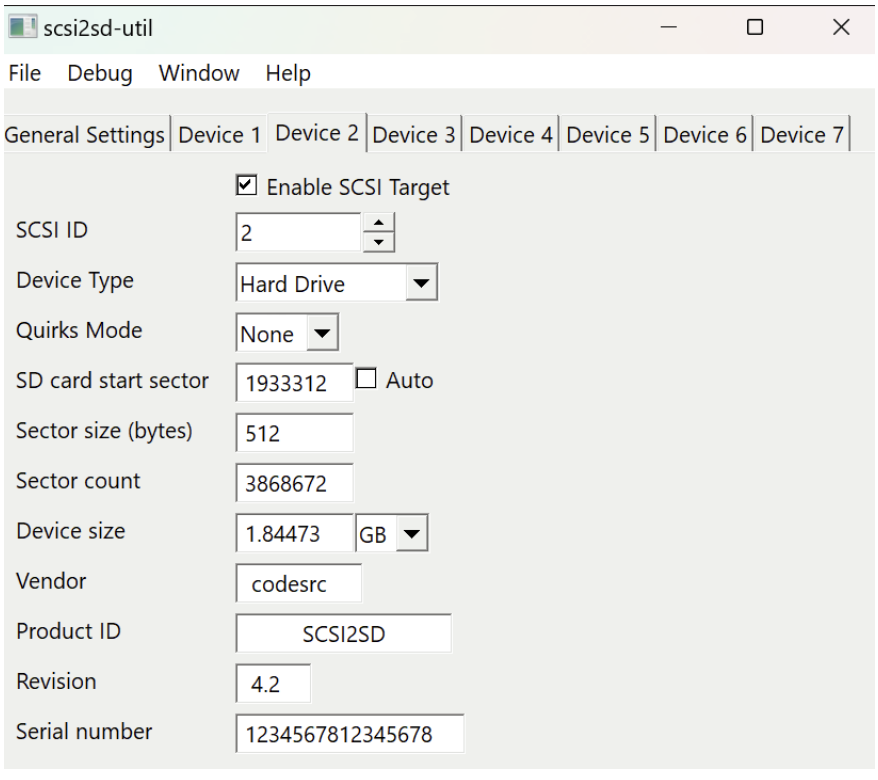
2. Connect your SCSI2SD to a PC using a USB cable.
3. Open scsi2sd-util.exe. Click File → Open File... & select the .xml file extracted in step 1: SxSI-SCSI_SCSI2SD_CONFIG.xml
4. This should load the correct configuration for your SCSI2SD device.
5. See screenshots below to confirm your settings loaded correctly before proceeding:



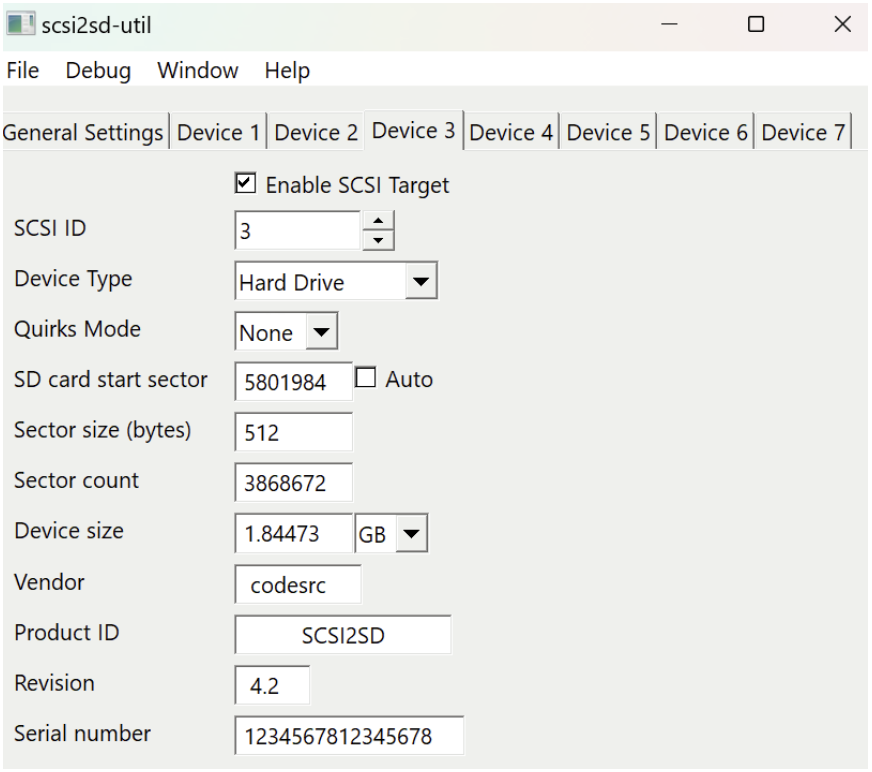
GENERAL SETTINGS



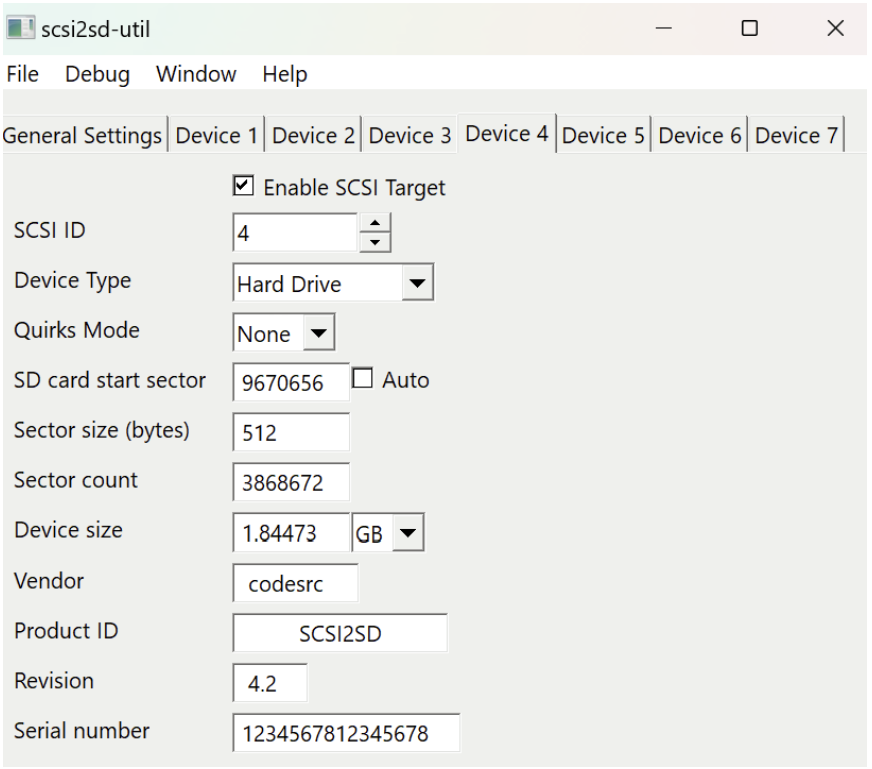
DEVICE 1



DEVICE 2



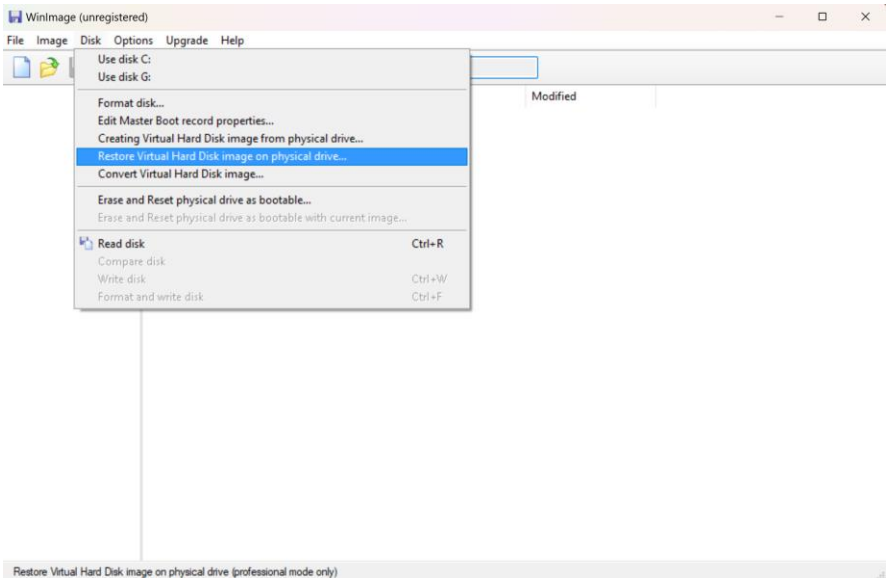
DEVICE 3



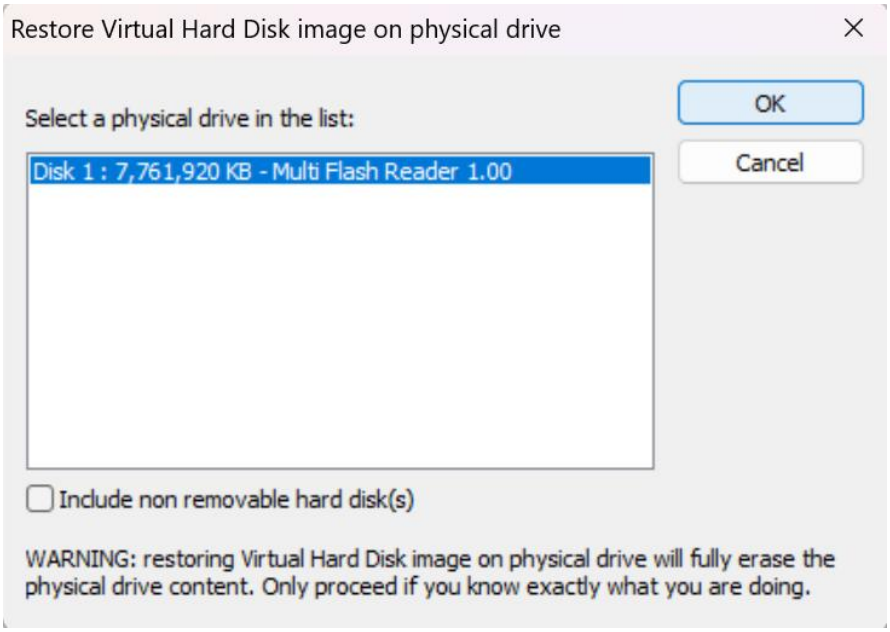
DEVICE 4

6. Click File → Save To Device to flash your SCSI2SD with the new settings.
7. Close scsi2sd-util and disconnect the USB cable.

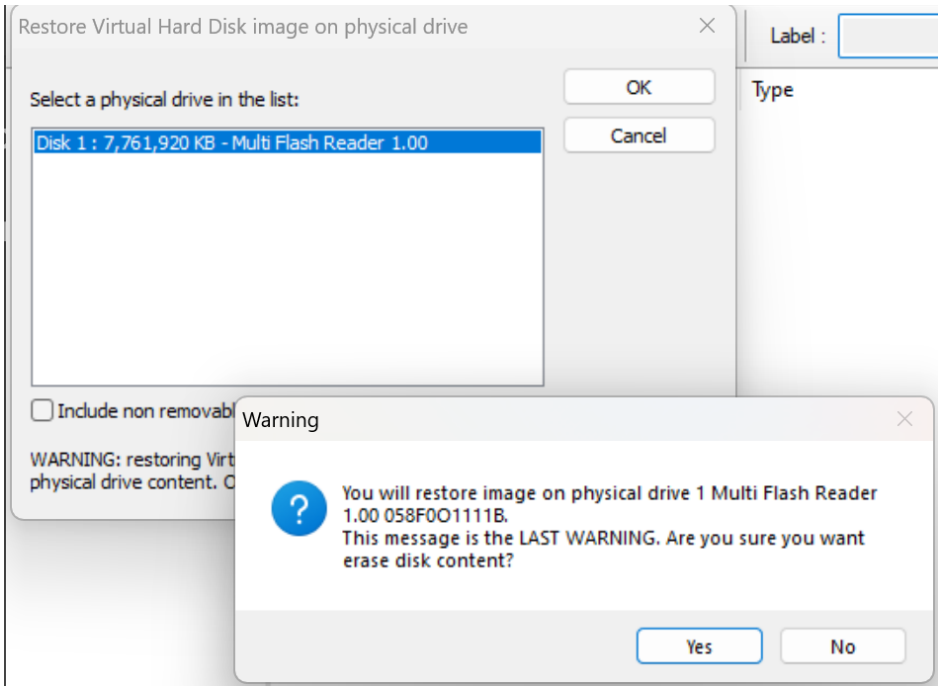
8. Write HDD image to SD Card
   NOTE: The following instructions use WinImage. Other utilities such as Win32DiskImager may also work.
9. Connect your SD card to your PC. (8GB minimum required)
10. Open WinImage as Administrator.
11. Select Disk → Restore Virtual Hard Disk image on physical drive...



12. Select the SD Card you would like to restore the HDD image to and click OK.



13. Select the SxSI-SCSI_SCSI2SD_vXXX.ima HDD Image extracted from Step 1. You will then get a final warning message that all data on the SD card will be erased. Click Yes to continue to write the image to the SD Card.



14. When the image has finished writing to the card, you can remove from your PC and insert into the SCSI2SD. Install the SCSI2SD device in your X68000 system. (Internal or External)
    NOTE: Make sure your SCSI2SD has power supplied to it.
15. Configure your X68000 for the HDD. Refer to the [SETTING UP X68000] section of the Install Guide for more info.
16. After booting, set your float device in CONFIG.SYS according to what you are running for FPU co-processor (reboot required after changing CONFIG.SYS):
    2 - None installed, software emulation
    3 - Hardware FPU for X68000 machines
    4 - Hardware FPU for X68030 machines
17. Install complete, enjoy!

NOTE: The SCSI2SD .ima file is unable to be used in PC Emulators or accessed by tools on PC such as editdisk. It is only accessible on real X680x0 hardware.

--- INSTALL GUIDE – BLUESCSI v2 ---

1. Make sure you are running the latest firmware. Current version can be found here:
   https://github.com/BlueSCSI/BlueSCSI-v2/releases

   Follow this guide to update your BlueSCSI firmware:
   https://github.com/BlueSCSI/BlueSCSI-v2/wiki/Updating-Firmware

2. Download the HDD Image files located in the BlueSCSI folder and extract them to a location on your PC. You should have 5 files that look like this:

   HD10_512.hda
   HD20_512.hda
   HD30_512.hda
   HD40_512.hda
   bluescsi.ini

3. Connect your SD card to your PC (8GB minimum required).
   FAT32 format compatible.
4. Copy all 5 files extracted in Step 2 to the root of your SD card.
5. Insert SD card in your BlueSCSI and install device in your X68000 (Internal or External).
   NOTE: Make sure the BlueSCSI has proper power supplied to it, either by the micro-USB connector or the Berg connector (if using BlueSCSI desktop version).
6. Configure your X68000 for the HDD. Refer to the [SETTING UP X68000] section of the Install Guide for more info.
7. After booting, set your float device in CONFIG.SYS according to what you are running for FPU co-processor (reboot required after changing CONFIG.SYS):
   2 - None installed, software emulation
   3 - Hardware FPU for X68000 machines
   4 - Hardware FPU for X68030 machines
8. Install complete, enjoy!

NOTE: Additional hardware modifications may be necessary depending on your setup. If you encounter a "So Low SCSI" error on SASI systems and have trouble booting to the HDD image, you may need to add termination power to the SASI connector. See this link for details:

https://nfggames.com/forum2/index.php?topic=7198.msg50477#msg50477

--- INSTALL GUIDE – HENKAN BANCHO PRO ---

1. Prepare your CF Card (8GB minimum required). Format to FAT32 with 32kb clusters for best performance. It is not recommended to use exFAT as it causes write errors on X68000.
2. Download the HDD Image files located in the Henkan Bancho folder and extract them to a location on your PC. You should have 4 files that look like this:

   SxSI-SCSI_vXXX_diskN[scsi1][h15][s63][512].hds
   SxSI-SCSI_vXXX_diskN[scsi2][h15][s63][512].hds
   SxSI-SCSI_vXXX_diskN[scsi3][h15][s63][512].hds
   SxSI-SCSI_vXXX_diskN[scsi4][h15][s63][512].hds

   Where XXX is the current version of the HDD image release, and N is the numbered disk (1-4)
3. Copy all 4 files extracted in Step 2 to the root of your CF card.
4. Insert CF card in your Henkan Bancho Pro and install device in your X68000. (Internal or External)
   Note: Make sure your Henkan Bancho has power supplied to it.
5. Configure your X68000 for the HDD. Refer to the [SETTING UP X68000] section of the Install Guide for more info.
6. After booting, set your float device in CONFIG.SYS according to what you are running for FPU co-processor (reboot required after changing CONFIG.SYS):
   2 - None installed, software emulation
   3 - Hardware FPU for X68000 machines
   4 - Hardware FPU for X68030 machines
7. Install complete, enjoy!

--- INSTALL GUIDE – ZULUSCSI ---

1. Make sure you are running the latest firmware. Current version can be found here: https://github.com/ZuluSCSI/ZuluSCSI-firmware

   NOTE: Updating ZuluSCSI is not covered in this guide.

2. Download the HDD Image files located in the ZuluSCSI folder and extract them to a location on your PC. You should have 5 files that look like this:

   HD10_512.hda
   HD20_512.hda
   HD30_512.hda
   HD40_512.hda
   zuluscsi.ini

3. Connect your SD card to your PC (8GB minimum required).
   FAT32 format compatible.
4. Copy all 5 files extracted in Step 2 to the root of your SD card.
5. Insert SD card in your ZuluSCSI and install device in your X68000 (Internal or External).
   NOTE: Make sure the ZuluSCSI has proper power supplied to it
6. Configure your X68000 for the HDD. Refer to the [SETTING UP X68000] section of the Install Guide for more info.
7. After booting, set your float device in CONFIG.SYS according to what you are running for FPU co-processor (reboot required after changing CONFIG.SYS):
   2 - None installed, software emulation
   3 - Hardware FPU for X68000 machines
   4 - Hardware FPU for X68030 machines
8. Install complete, enjoy!

--- INSTALL GUIDE – OTHER DEVICES ---

NOTE: This section needs work. Please reach out to me if you'd like to contribute! As this is all secondhand info, let me know if any of the following information is inaccurate.

Devices confirmed to work with the SxSI-SCSI HDD Image:

SCSI2SD
Henkan Bancho Pro
Ardscsino
BlueSCSI v1
BlueSCSI v2
ZuluSCSI

For devices not covered in this guide, a good starting point would be to download the files located in the HDS folder and extract to a location on your PC.
Adapt the steps in the BlueSCSI or Henkan Bancho Install Guides to meet the needs of your hardware.
All Human68k settings like SWITCH.X from the other install guides still apply.

Some notes regarding other devices:

Update by aotta for ZuluSCSI and X68000:
https://github.com/ZuluSCSI/ZuluSCSI-firmware/pull/368
SillyTinySCSI – Centronics 50 modification by hiker tested:
https://nfggames.com/forum2/index.php?topic=7318.0

--- REVISION HISTORY ---

REV.B – 01Jan2025
- Revised to apply for v3.00 release
- Updated SCSI2SD Section
- Added Install Guide for BlueSCSI v2, Henkan Bancho Pro, and ZuluSCSI

REV.A – 17Mar2024
- Initial build for v2.20 – guide applicable for versions as early as 1.09

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