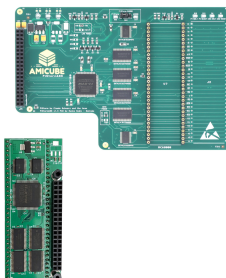
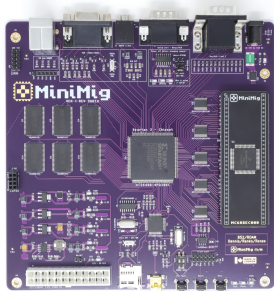


PiStorm for MiniMig (v1.97itx or v1.98itx) & AmiKit

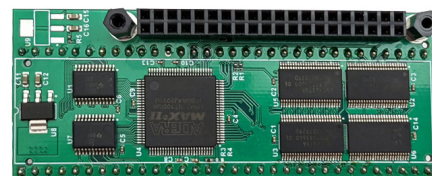


You have a MiniMig and you want to go full-blown PiStorm on it! Congratulations! You have a couple of avenues you can pursue to get there. If this resonates with you at all, then these instructions are definitely for you!

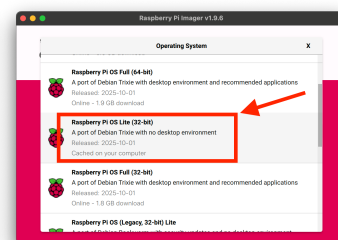
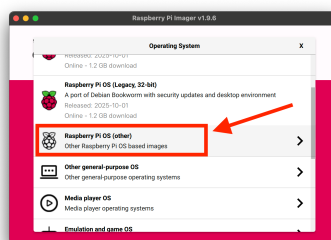
If you have Ranko's newer PiStorm You can skip right to the PiStorm68K Prep section. His PiStorms are already configured to work with the MiniMig. If not, you might have an O.G. PiStorm from eBay, or some other Amiga retailer, and it will require a little more "setup." read on....

PiStorm O.G. Prep Work

So you have one of these PiStorm adapters pictured to the right? We have a little work that needs to be done to it before it will work smoothly with AmiKit for PiStorm. That means we have to update the programming on it to work with your MiniMig. So...



1. Download Raspberry Pi Imager, install it, and launch it.

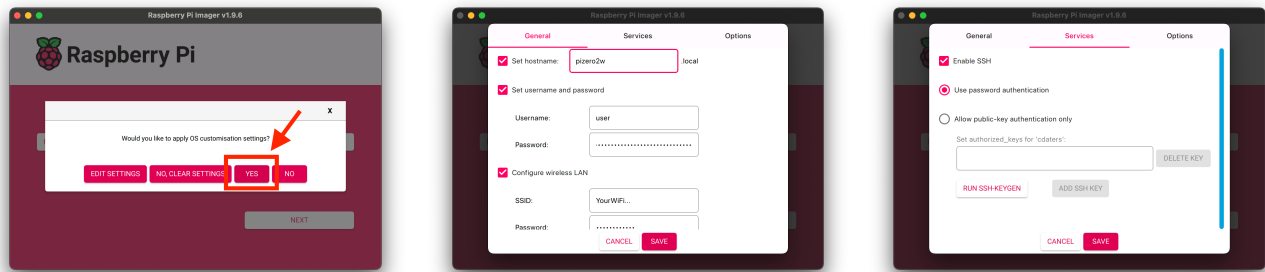


For **Raspberry Pi Device**, Choose your Pi model (I am using a Pi Zero 2 W).

Next choose the **Operating System**, we want the 32bit Lite version of Raspberry Pi OS, so click on the 'Choose OS' and select 'Raspberry Pi OS (Other),' then 'Raspberry Pi OS Lite (32-bit)'

Finally, for **Storage**, choose your Storage media. I used a 32GB SD card for this stage in the process.

Next you'll be prompted to apply any customization settings and I would *highly* recommend that you do. When you select yes!



Under the 'General' tab, you'll be prompted to set a hostname, your username and password, and local settings. Set these as appropriate. But the **MOST IMPORTANT** part of this stage is setting your Wireless LAN settings. Set your SSID and Password as appropriate for your network, and choose your 'Wireless LAN Country.' Mine is 'US' and this may get picked up locally for you.

Under the 'Services' tab, you want to make sure that 'Enable SSH' is checked, and select 'Use password authentication.' This hopefully will mitigate a potential issue of not have the ability to plug a USB keyboard into your Pi at the PiStorm stage below. More on this in that section.

If everything looks good at this point, proceed, acknowledge any warnings, and continue.

Once the imaging and verification process is completed, remove the SD card from your computer and insert it into the Pi.

2. Next, carefully remove the stock MC68SEC000 CPU from your MiniMig (Figure A). You can look to YouTube for some videos on IC chip removal and installation tips if needed, just be careful not to bend or break any pins!

3. Next, it is easiest to insert the PiStorm adapter into the MiniMig 68K socket first (Figure B), then attach the Pi to the PiStorm adapter like so (Figure C), and from hereon, I will collectively refer to this PiStorm adapter and Pi combination as, the "PiStorm":

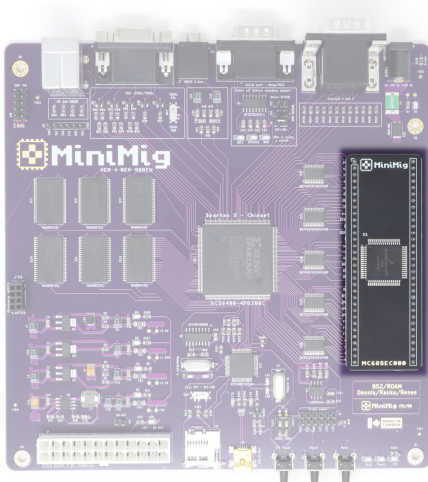


Figure A

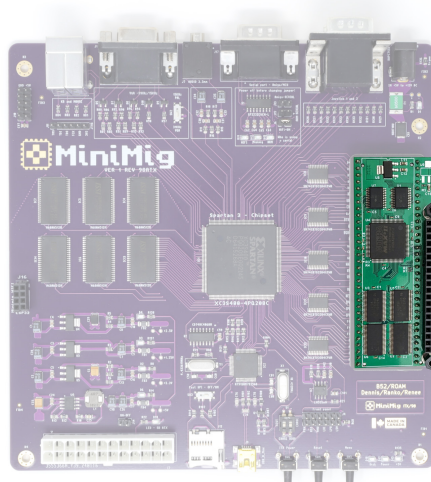


Figure B

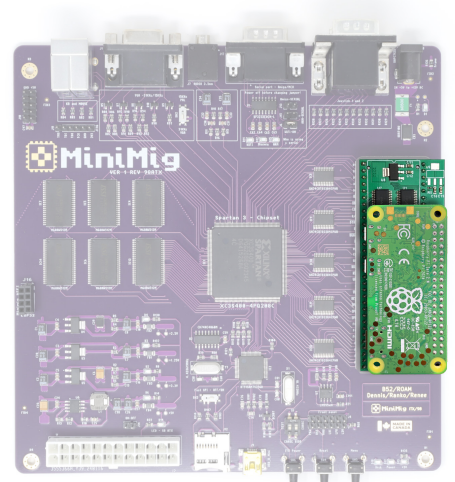


Figure C

4. Connect an HDMI display and a USB keyboard to the PiStorm. I use a micro-USB OTG adapter (micro-B male to USB-A female) plugged into the USB port to connect a Logitech K400+ trackpad/combination keyboard to the Pi. You will connect this to the middle USB port.

NOTE: **DO NOT PLUG POWER** into this Pi. It will be powered by the MiniMig via the PiStorm adapter.

5. Power on the MiniMig. You should see a rainbow colored screen on the HDMI monitor and the PiStorm booting to the Raspberry Pi OS that you flashed to your SD card.

6. When the boot process is finished (on the first run it reboots automatically after resizing the filesystem on your SD card), you will then ultimately end up at a login prompt. You may also see an assigned IP address just above the prompt for your username, and if you set up the SSH options previously, you can use your favorite terminal of choice to remotely connect to your Pi and finish the configuration steps of your PiStorm in the terminal.

If you did not set your SSH service and instead have a USB keyboard connected, log in as your configured user

7. Now you want to update your Raspberry Pi OS and install a couple of things. Run the following command:

```
sudo apt update && sudo apt install git libsd12-dev openocd unzip -y
```

Hit Return/Enter to execute and your Pi will then proceed to update it's repositories, download these packages, and install them. This will take a few minutes to complete depending on your WiFi connection to the Internet.

8. Once that is done, we want to download two more packages/bundles. One is Ranko's modified PiStorm bundle for the PiStorm, and the other is an older OpenOCD binary suggested by Ranko for use in programming/updating the CLPD chip on the PiStorm adapter.

So again, enter the following commands to change to your home directory, download these two compressed files and then uncompressed them into their own separate directories in your home folder:

```
cd ~/
wget --show-progress -c -O pistorm-main.zip "https://www.minimig.ca/
software/pistorm-main.zip"
unzip pistorm-main.zip
wget --show-progress -c -O xpack-openocd-0.11.0-2-linux-arm.tar.gz "https://
github.com/xpack-dev-tools/openocd-xpack/releases/download/v0.11.0-2/
xpack-openocd-0.11.0-2-linux-arm.tar.gz"
tar -xzf xpack-openocd-0.11.0-2-linux-arm.tar.gz
```

9. We are simply updating the CPLD configuration to use Ranko's MiniMig settings, so at this point we want to tell OpenOCD to use the OpenOCD binary we just downloaded and extracted. Go ahead and enter the following command:

```
sudo ln -sf "$HOME/xpack-openocd-0.11.0-2/bin/openocd" /usr/local/bin/
openocd
which openocd
openocd --version
```

The 'which openocd' should show '/usr/local/bin/openocd' confirming that the system sees it, and 'openocd --version' should reflect '0.11.0+dev' or something similar. Definitely NOT 0.12.0...

10. At this point we are good to go. Make the CPLD programming script for your PiStorm adapter executable:

```
chmod +x prog_240.sh
```

Now run the FPGA update with:

```
sudo ./nprog_240.sh
```

If everything goes as planned, you should shortly see a message that says 'shutdown command invoked,' confirming that your PiStorm adapter CPLD has been programmed successfully.

Power down your MiniMig, and remove the Raspberry Pi OS SD card from the Pi.

Congratulations! It is time to get down to business!

PiStorm68K Prep Work

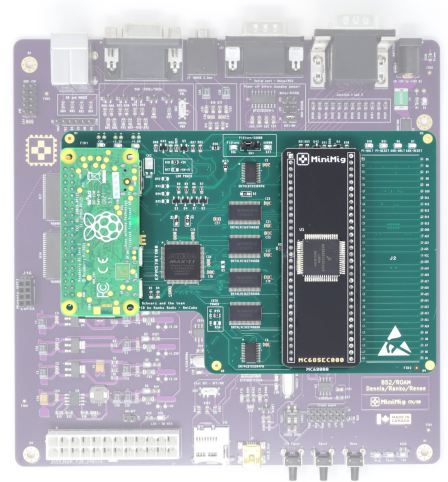
So you have one of these PiStorm adapters pictured to the right!

1. Well, carefully remove the stock MC68SEC000 CPU from your MiniMig (Figure A). You can look to YouTube for some videos on IC chip removal and installation tips if needed, just be careful not to bend or break any pins! You can then install it onto the PiStorm adapter as shown to the right, but using it like this is beyond the scope of this guide.

2. While we are on this topic however, it is best to install this CPU AND the Pi to this adapter before installing the adapter into the MiniMig. Just be careful, ensure that the jumper on the adapter is set for PiStorm.

3. Next, carefully insert the PiStorm adapter into your MiniMig.

4. Congrats! Please proceed to the next step!



MiniMig Prep Work

Now it is time to configure the MiniMig to work with the PiStorm. Specifically, we have to adjust the FPGA Core being used, some memory settings, and turn off the default drive hard files.

1. Download the MiniMig1 PiStorm binaries from the MiniMig website to your computer somewhere and extract it (Figure A):

```
http://Minimig1-v197itx-68k-pistorm-6mb-FMG230427-bin.zip
```

Pick one of the bins that is closer to the MHz you are looking for and copy that to 'Minimig1.bin'

Note: You don't necessarily want to go right for the 60MHz bin. These increasing MHz bins are like turbo-charging your MiniMig and going straight to 60MHz may not work, so try 45MHz,

etc., experiment. In my case, I am using the Minimig1-v197itx-68k-pistorm-45MHz-FMG230427.bin file copied to Minimig1.bin

2. On your MiniMig SD card (**Note:** this is **NOT** your PiStorm SD card), you will rename your current 'Minimig1.bin' to something like 'Minimig1.ORIG.bin' so that you don't overwrite it and can rollback any unwanted changes. I then copied my Minimig1.bin onto it. The MiniMig will always use 'Minimig1.bin.' Don't be tempted to set this in the MiniMig menu settings.

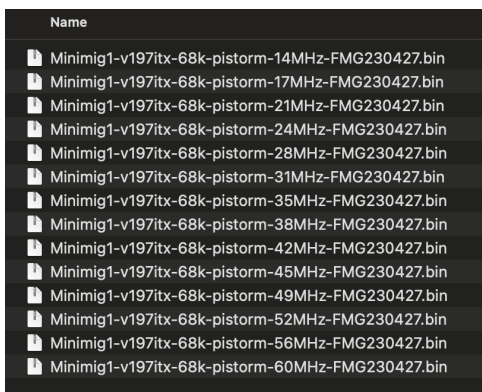


Figure A

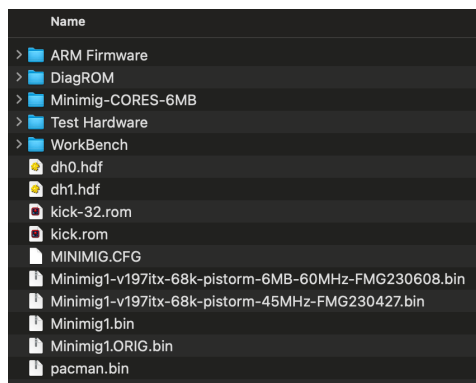


Figure B

3. Put your MiniMig SD card back into your MiniMig and power it on. Now, speaking of those menu settings, hit the F12 key to bring up the MiniMig menu. You will see something like the image to the right:

Here you will use your arrow keys to navigate the menus.



4. Arrow right to get to the 'Main Menu' and then arrow down to 'Settings,' hit return/enter to enter that submenu.



5. Here, you will see the following screen and we are currently interested in the 'Memory' submenu. So cursor over to that and hit enter.



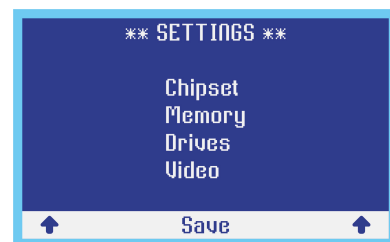
You will see the default settings of Chip: 2.0 MB, Slow: 1.5 MB, and Fast: 2.0 MB.

The PiStorm will handle the Slow and Fast RAM, so we need to zero these out.



Cursor down Slow and Fast and hit return/enter until these reflect 0 MB each

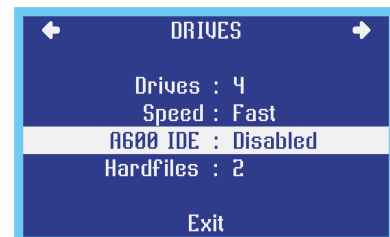
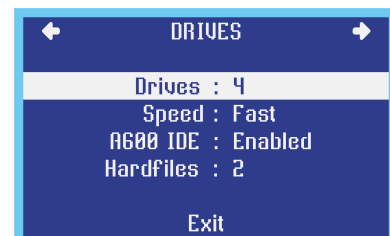
Hit Esc to get back to the top of the 'Settings' sub-menu. Here if you scroll down to 'Exit.' You'll down arrows suggesting there is one more level you can access. And that level is... 'Save.' Select this and hit return/enter!



6. Now we need to turn off the hard files, and our PiStorm will handle all of that now... So from the top level 'Settings' menu, navigate to 'Drives' and hit return/enter.

Here you can disable the A600 IDE. The minute you do this, the MiniMig will want to perform a reset.

At this point you are done with the PiStorm and MiniMig configuration! It is time to move on to the AmiKit PiStorm Prep!



Now we are getting close to the AmiKit part of our journey but there are still a couple of things we have to do before we proceed.

So you will still follow the AmiKit Quick Guide with respect to getting everything together.

Please note, however, in my case, I am using a Raspberry Pi Zero 2 W, and I do have a heatsink on the processor on the Pi. I do also have a purchased copy of Roadshow and P96

from icomp.de (not the Picasso96.lha mentioned in the Quick Guide), and of course, the AmigaOS 3.2 from Hyperion Entertainment.

I know the Jan has made accommodations for automatically installing Picasso96, and Roadshow.lha, as well as the Wi-Fi driver. But I ran into issues. I will document those issues here and what I did to mitigate those issues to get fully up and running, and up-to-date with AmiKit running on the MiniMig!

To begin with, the MiniMig has to control the booting process. This means making sure that our kickstart is on the SD card of the MiniMig. A few menu settings back, you may have noticed the 'KICK-32' to the right of 'ROM:' Keep this in mind for now.

1. So, before we start down that road, follow the Quick Start guide until you get to the copying of the Roadshow.lha file to the SD card. At this point, we need to edit the config.txt settings on the root of the AmiKit SD card (this is the PiStorm config file), and because the MiniMig has to control the boot process, we need to open this file, search for the line that looks something like:

```
initramfs kick.rom
```

...and comment this line out, then save your changes. It should now look like:

```
#initramfs kick.rom
```

Now, go ahead and download the WiFiPi driver per Jan's instructions here:

<https://www.amikit.amiga.sk/wifipi>

...and place that archive in the BOOT: partition like he documents accordingly. But do not boot into AmiKit yet, proceed to the next step.

2. Now, additionally download Emu68-tools from Michal Schulz's Github. We are going to extract the latest version of WiFiPi and put that in the BOOT: partition alongside Jan's file.

So download the latest release of Emu68-tools:

<https://github.com/michalsc/Emu68-tools/releases>

Extract that archive and find and locate wifipi.device in:

Emu68-tools-xxxxxxx-xxxxxx/Emu68-WiFi/Devs/Networks/wifipi.device

3. Roadshow. I should point out at this point that, following Jan's Quick Guide, nothing I tried worked getting my licensed unrestricted version of Roadshow working. I first put my initial Roadshow.lha file in the BOOT:+Roadshow folder. That did not swap in my unrestricted version of Roadshow. So then, in a subsequent attempt, I put the interior Roadshow.lha (the compressed full version of Roadshow 1.15, not the compressed compact or update versions) file in that location. Nothing worked. AmiKit was still using the Demo version. So I got serious...

Like I mentioned above, my Roadshow.lha file that I was provided after my purchase is an archive that contains three other compressed archives inside of it. So I extracted that to my computer and ended up with three compressed files in that folder; Roadshow.lha, Roadshow-Compact.lha, and Roadshow-Update.lha.

I extracted the Roadshow.lha (not the 'compact' or 'update' files) and the file (bsdsocket.library) we are looking for in that extracted hierarchy of files and folders is located in:

Roadshow-1.15/Workbench/Libs/bsdsocket.library

Go ahead and copy this file alongside WiFi_WPA_for_AmiKit_PiStorm.lzx, and wifipi.device in the BOOT: folder on the AmiKit SD card.

4. I put my Picasso96.lha file in the BOOT:+Picasso96 folder (this did work correctly with the extraction, installation, etc.)

6. I also put my iBrowse3key file at the BOOT: location alongside my other files.

7. I put the rest of the ROM files for WHDLoad in their respective location, BOOT:+WHDROMs

8. So now, our AmiKit for PiStorm SD card should be ready to go.

INSERT THE PREPARED AMIKIT MICRO SD CARD INTO THE PISTORM AND BOOT THE MINIMIG!



BABY! Or, AmiKit Setup...

So your MiniMig should be booting up, you'll see your VGA monitor go blank and the PiStorm EMU68 boot screen appear on your HDMI monitor. In a moment it AmiKit will popup with it's installation screens, it will find everything it needs and install like usual. When it gets to the point of the Network Wizard, close this and press Left Amiga + S to invoke Amiga Shell (or press right mouse button over empty Amiga desktop and select Opus > Execute Command and then click the CLI button). Now type the following command:

```
LZX -x x BOOT:WiFi_WPA_for_AmiKit_PiStorm.lzx AmiKit:
```

When you are asked to overwrite the existing files, press "a" key (All).

At this point, in that same shell window type in the following commands:

```
Copy BOOT:wifipi.device DEVS:Networks/
```

```
Copy BOOT:bsdsocket.library LIBS:
```

```
Copy BOOT:IBrowse3Key SYS:Internet/IBrowse/
```

Now restart your Amiga. Next time it boots, Network Wizard will appear.

Select WiFiPi and follow the prompts. Then reboot and your Amiga is online!

Now you can activate your AmiKit by entering your details into the LiveUpdate and downloading the update(s). For troubleshooting any issues, please consult the troubleshooting sections of the respective sections of the Quick Guide and Wi-Fi driver