

Classic 520

32 bit accelerator board for Amiga 500 / Amiga 1000

(date 12/6/2019)

Key features

- Connects to expansion port, no need to open your Amiga
- 68EC020 CPU running at 28 MHz (10x stock A500 performance)
- 8 MB fast memory with autoconfig
- Flash based Kickstart ROM emulation (3.1, 3.0 or any other version)
- Integrated CF card slot (bootable system drive, CF / MicroDrive compatible, no hot swap)
- Integrated SD card slot (not bootable, FAT95 support for fast data exchange, hot swap)
- Standard 3.5" 40 pin IDE connector for additional devices (HDD, CD ROM etc.)
- Boot menu to control certain features (turbo CPU, fast RAM, custom ROM, IDE)
- ROM flash utility

Compatibility, recommended system configuration

Classic 520 is designed for Amiga 500 and Amiga 1000 (both PAL and NTSC).

The recommended configuration is: **Amiga 500 rev. 6** or newer motherboard, ECS chipset and 1 MB Chip RAM (8372 Agnus is required to support 1 MB RAM, while any Denise and Kickstart ROM can be used). The card capabilities can be used maximally with an Amiga 500+ (ECS - Enhanced Chip Set), rev. 8 motherboard and 2 MB Chip RAM.

Classic 520 is working fine with older Amiga 500 models (rev. 3 and rev. 5), but numerous WHDLoad titles require at least 1 MB Chip RAM. These old Amiga models cannot be upgraded to 1 MB Chip RAM easily.

1.8 – 2Mb memory expansions boards with **Gary adapter conflict** with Classic 520. Please remove this type of memory expansion from your Amiga. Classic 520 has 8 MB fast RAM, You'll not need a slow fast RAM anymore.

Software compatibility is excellent: the card is 100% compatible with the AmigaOS (WB 3.0, WB 3.1, WB 3.5, MagicWB, Newlcon, Classic WB etc.). WHDLoad compatibility greatly depends on the version of the WHDLoad slave files. Compared to other turbo cards (which we tested many retro cards - Accel 14MHz, Supra 28, c't PAK-68, M-tec 68020, M-Tec / Neuroth Hardware Desig 68030, Mega-Midget Racer, Apollo 620, M-Tec 630) the Classic 520 hardware and software compatibility is outstanding.

HARDWARE INSTALLATION

Amiga 500

1. Turn off the your Amiga 500
2. Remove the plastic cover from the left side expansion port
3. Set jumper J1 to position 1-2 to disable the FlashROM (enable Flash programming mode)
4. Align the card carefully and push it gently. The "Classic 520" label should be facing up



5. Insert a blank or preinstalled CF card.
6. Turn on your Amiga

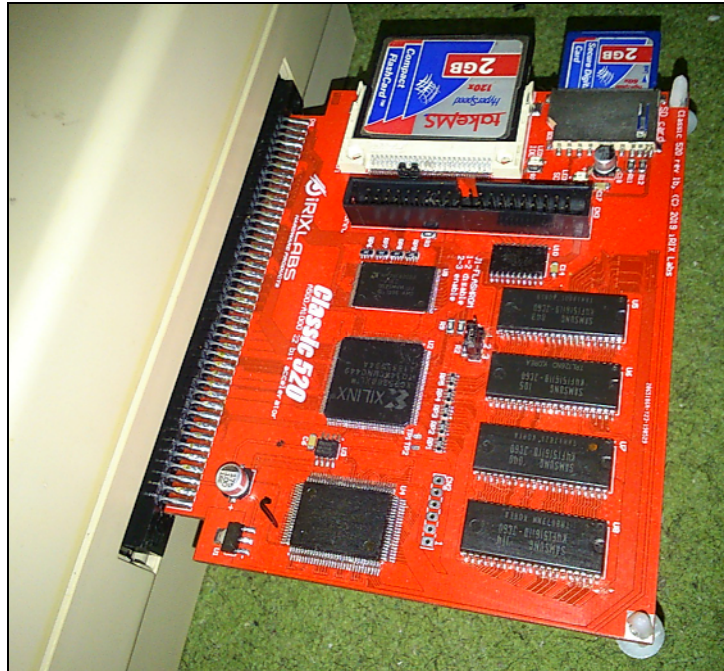
Your Classic 520 is shipped with preprogrammed firmware and blank Kickstart ROM. J1 1-2 position enables the motherboard Kickstart ROM, so your Amiga should boot up with a regular v1.2 – 1.3 (or whatever your motherboard has) Kickstart to enable ROM flashing.

NEVER INSERT OR REMOVE CLASSIC 520 WHILE YOUR AMIGA IS TURNED ON! BOTH YOUR AMIGA AND CLASSIC 520 CAN BE DESTROYED!

NEVER CONNECT A CLASSIC 520 WITH REVERSE POLARITY! THIS CAN DESTROY BOTH YOUR CLASSIC 520 AND AMIGA!

Amiga 1000

1. Turn off the your Amiga 1000
2. Remove the plastic cover from the right side expansion port
3. Set jumper J1 to position 1-2 to disable the FlashROM (enable Flash programming mode)
4. Align the card carefully and push it gently. The "Classic 520" label should be facing up



5. Insert a blank or preinstalled CF card.
6. Turn on your Amiga.

Your Classic 520 is shipped with preprogrammed firmware and blank Kickstart ROM. J1 1-2 position enables the motherboard Kickstart ROM, so your Amiga should boot up with a regular v1.2 – 1.3 (or whatever your motherboard has) Kickstart to enable ROM flashing.

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SOFTWARE INSTALLATION

Amiga 500 / Amiga 1000

Classic 520 has a user programmable FlashROM for a Kickstart ROM image. You'll need the **c520flash** utility to complete the ROM programming operation (available on our website).

Flashing instructions

1. **Format** a bootable **floppy** disk.
2. Copy the following files: **Kickstart 3.1 ROM image**, **c520flash**.
3. Assure J1 was set to **FlashROM disable (1-2)** when the system has been reseted / powered up.
4. **Boot** the **floppy** disk.
5. Run **c520flash** from CLI / Shell. The options are:
 - b Flash a firmware image
 - k Flash a Kickstart ROM image
 - e Erase the Kickstart ROM image

Enter the following command to burn Kickstart 3.1 image:

```
c520flash -k kick40.063.rom
```

IMPORTANT! A non encrypted **Kickstart 3.1** image **size** is **524288 bytes**. If it is different, the ROM image will not work at all!

Once the command is executed a progress indicator will shown on the screen. If flashing was successful, set J1 jumper to **Flashrom enable** position and reboot your Amiga.

If everything went properly, the machine will start with the Classic 520 boot screen. All card features are enabled by default: 68EC020 CPU, 8 MB Fast RAM, Kickstart emulation and the IDE controller.

You can enter the boot menu at every reset, pressing the left mouse button. Use the function keys to enable / disable individual modules. Classic 520 is compatible with the Amiga Early Startup Control menu: pressing both mouse buttons upon system reset will enter the Kickstart boot menu.

Please note, flashing a **wrong firmware** or **Kickstart image** will **NOT BRICK** your Classic 520. It can be reflashed any time with disabled FlashROM jumper (J1).

CF card / HDD setup

HDToolBox or HDInstTools (the latter is better) can be used for partitioning the CF card / HDD / microdrive. We'll here explain the usage of HDInstTools, which is freely available on Aminet.

For optimal setup a 4-8 GB media with PFS3 or SFS file system is recommended. Example partition layout:

1. Workbench: 200-500 MB, bootable
2. Data: 2-4 GB (set it < 4 GB)
3. Work: 2-4 GB (set it < 4 GB)

This layout will fill up the entire disk space.

Step by step partitioning instructions are available below. A blank media without any partitions is assumed; if there are unknown partitions, remove them first.

1. Boot the HDInstTools floppy, launch the program.
2. In Preferences / Mode select **Manual**
3. Click **File system** button
4. Click **Add** button
5. Select **pfs3_aio.handler** and click **Load** button
6. Enter **PFS3** in the **DOSType** field and click **Use**
7. Click **Use** once again
8. Now click the **Partition drive** button
9. Click **Add partition**
10. Click **Edit partition**
11. Set the size of **DH0** (this will be the Workbench partition) to 200-500 MB
12. Select **Custom file system** and enter **PFS3** in DOSType field
13. **Automount** option should be **checked** by default
14. Click **Use** button
15. Now create the 2nd and optionally the 3rd partitions using the same way. They should not be bootable. Select **PFS3** file system for every single partition.
16. Once done click the **Use** button
17. On the main screen click **Save changes** to the disk. The program will warn You "All data on changed partitions will be lost, are You sure?". Once accepted, a new requester will ask You to reboot the system. Click **Yes** again.
18. Boot from the floppy again and format the newly created partitions.

19. Install the Workbench using your installation floppies

The most widely used file systems are:

1. **Fast File System** (FFS) – This is a standard, ROM based file system. It is very slow and unsecure: if it gets damaged (which can happen easily upon an unclean system shutdown) the disk validation process can take up 10-15 minutes on larger disks (if it succeeds at all).
2. **Professional File System 3** (PFS3) – This is the recommended file system to use with your Classic 520 media. It is rock stable, never has validation problems, works fast, undelete is available etc. The latest version is open source and available freely on Aminet (pfs3aio.lha).
3. **Smart File System** (SFS) – It has the same advantages over FFS as PFS3. SFS is also recommended.

Both FFS and PFS3 are compatible with 68000 CPU. Please note, Smart File System (SFS) cannot be used with your motherboard CPU, only if Classic 520 68EC020 CPU is enabled.

Experienced users can also complete the entire software installation procedure in WinUAE. In that case be very careful to not delete the host operating system's disk.

Hints for fast boot operation

Classic 520 should boot Workbench 3.x in a few seconds. If the system boots slower, please check the following:

1. Faulty or missing internal floppy drive or a Gotek Floppy Emulator causes significant slowdown in the boot process.
2. Enable the Kickstart ROM emulation, as it is much faster than the onboard Kickstart ROM.
3. Use high grade CF cards.

Setting up the SD card

The current driver is able to handle **MMC, SD, SDHC** cards with max. **32 GB** total card capacity. 32 bit AmigaOS limits the usable size to **4 GB** per card. Please follow the installation steps below in order to enable the usage of SD cards with Classic 520 board:

1. **Download** the SD card **driver** from our website.
2. **Decompress** the .lha **archive**.
3. **Copy** the **files** to appropriate directories.
4. Double **click** the **SD0 icon** or **reboot** the Amiga.
5. Insert a <4GB SD card first. It should work immediately, without a need to create a partition. You can read / write it regardless it has a FAT16 or FAT32 file system. Formatting operation should also work.
6. If the SD card is greater than 4 GB, then You'll need to create a max. 4GB partition on it. Use any partitioning tool available on Windows, Linux etc. Format it to FAT32 or FAT16 file system. Please note FAT16 mounts faster in Amiga. Anyway, both versions are perfectly reliable.

If the card is not recognized properly, cannot be formatted, check it with **sdinfo** command. If it is recognized by **sdinfo**, then probably the card is partially broken. In that case try to format it in your PC or use a different card.