



# USER MANUAL

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Hardware, software and industrial design by Chris Smith.

Graphic and industrial design by Jen Carling.

Project management by Stuart Chiplin.

Manufacturing management by Ben Jones.

Produced and licensed by Darren Melbourne and Paul Andrews.

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Whilst every care has been taken to verify the accuracy of the information and links provided in this guide, we cannot be held liable or responsible for any loss, damage or inconvenience caused as a result of any inaccuracies.



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# Precautions

## Seizures

A very small number of people may experience seizures or blackouts triggered by flashes of light or particular patterns of colour. This may happen even if they have never had a seizure before. Video games, some of which employ effects such as colour-cycling or screen-flashing, may trigger these symptoms.

- Anyone who has had a seizure, blackout, loss of awareness or any symptom related to an epileptic condition should consult a doctor before using **THEA500 Mini**.
- Stop using **THEA500 Mini** immediately and consult a doctor if you or anyone using or viewing **THEA500 Mini** experiences dizziness, eye or muscle twitches, disorientation, affected vision, involuntary movements, convulsions or seizures. Only resume after consulting with a doctor.

To reduce the chances of a seizure while using **THEA500 Mini**:

- Use **THEA500 Mini** in a well-lit area.
- Ensure the monitor or TV screen does not take up a large portion of your field of vision, by keeping a sensible distance away from the screen and/or using a small screen.
- Do not use **THEA500 Mini** if you are tired or need sleep.
- Take a 15 minute break every hour, even if you don't think you need it.

## Repetitive motion injuries

To reduce the chance of injury due to repetitive motion:

- Avoid excessive play.
- Take a 15 minute break every hour, even if you don't think you need it.
- If your hands, wrists or arms become sore while playing, or if you experience tingling, numbness, burning or stiffness, stop immediately and rest for several hours before playing again.
- If you continue to experience any of the above symptoms during or after using **THEA500 Mini**, consult a doctor.

## Eyestrain and motion sickness

Continuous play can cause your eyes to hurt, and some games may cause some players to experience motion sickness. If you or anyone using or viewing **THEA500 Mini** experience these symptoms, stop immediately and rest. Do not drive or engage in any other demanding activity until the symptoms subside.

To reduce the chances of these symptoms:

- Take a 15 minute break every hour, even if you don't think you need it.
- If you are prone to motion sickness, try to identify which games include the kinds of motion that trigger these symptoms, and avoid them.

## Electric shock

To avoid electric shock when you use **THEA500 Mini**:

- Do not expose **THEA500 Mini** to liquids, high temperatures, high humidity, steam, direct sunlight, excessive dust or smoke.
- Do not allow small particles or any foreign objects to get inside **THEA500 Mini**.
- Do not touch **THEA500 Mini** or any connected cables during an electrical storm.
- Do not touch any of the metal parts of the connectors on **THEA500 Mini**.
- Do not use any power cables, HDMI cables or peripherals if they are split, frayed or otherwise damaged.

## Ventilation

To avoid **THEA500 Mini** overheating in use:

- Place on a flat, even surface.
- Do not place it on a rug or carpet with long fibres.
- Allow plenty of airflow through the grilles on the top and bottom of the case.
- Do not allow dust to build up on the grilles.
- Do not cover **THEA500 Mini** or use it in an enclosed cabinet or other location where heat may build up.
- Do not place in a narrow or cramped space.



## Handling and use

- Only connect the following devices to the USB ports: keyboards, mice, controllers, memory sticks, powered hubs, keyboards.
- Ensure that the power adapter can supply sufficient power for **THEA500 Mini** and all connected devices.
- Make sure all cables are connected only to the correct ports, and make sure to hold plugs straight when inserting.
- Keep **THEA500 Mini** and all cables and peripherals out of the reach of young children.
- Do not position **THEA500 Mini** where it or any connected cables might cause someone to trip or stumble.
- Do not drop, hit or otherwise abuse **THEA500 Mini** or any cables or peripherals.
- Do not power off **THEA500 Mini** whilst data is being loaded or saved.
- Some gameplay and game features may be different from when originally played on an Amiga computer.

# Introduction

**THEA500 Mini** is a modern recreation of the Amiga home computer series first released by Commodore in 1985. **THEA500 Mini** is instantly reminiscent of the original Amiga 500 (although the keyboard is purely aesthetic and non-functional). However, looks can be deceiving as **THEA500 Mini** is packed with features that were only to be found on later Amiga models, such as the Advanced Graphics Adapter and additional memory, and its HDMI and USB ports make it plug-and-play with today's technology.



**THEA500 Mini** is supplied with its own replica mouse and a precision gamepad (a modern reimagining of the Amiga CD32 controller) for a truly authentic feel, and comes preloaded with 25 fully licensed classic games from the heyday of the Amiga. Plus you can easily play any Amiga games you own from a USB stick.

So whether you are new to Amiga gaming or a seasoned pro, with **THEA500 Mini** it has never been so much fun!

# Setting up THEA500 Mini

## Unpacking the box

Before connecting any cables, check the contents of the packaging:

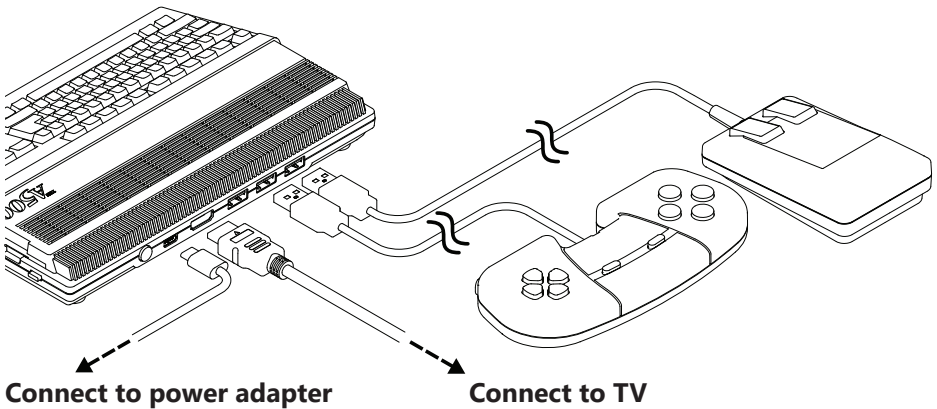
- THEA500 Mini
- THEGAMEPAD USB gamepad
- THEMOURSE USB mouse
- HDMI cable
- USB power cable
- THEA500 Mini Quick Guide

You will also need to have the following items available (not included):

- A monitor or TV with an HDMI port, capable of 720p resolution
- A USB compatible 5V/1A (5W) output power adapter

## Connecting THEA500 Mini

Make sure your monitor or TV is switched off before you connect THEA500 Mini.



## Turning THEA500 Mini on and off

Switch the TV source to the appropriate HDMI input, then press the power button at the rear of **THEA500 Mini**. The power indicator will illuminate red, and the TV will show the welcome logo.

To turn off **THEA500 Mini**, press and hold the power button for two seconds.

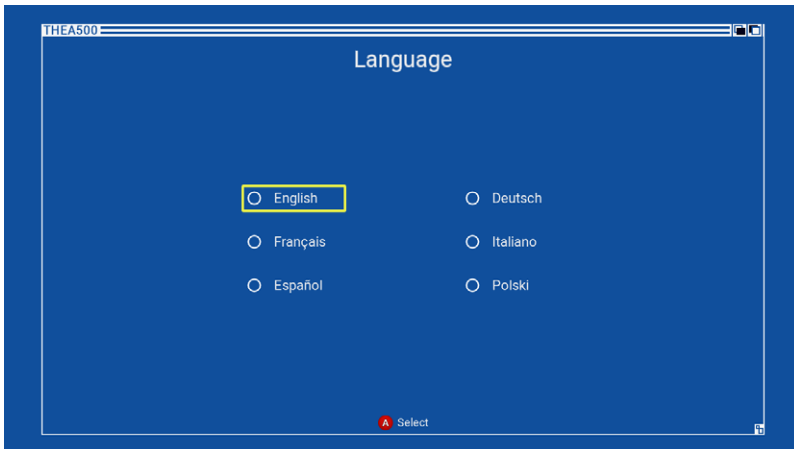
## First-time setup

The first time you turn on **THEA500 Mini** you will be asked a few questions about some essential settings needed to get you going with your new **THEA500 Mini**.

To navigate these menus, use **THEGAMEPAD** and follow the on-screen prompts and button hints displayed at the bottom of the screen.

### Language

**THEA500 Mini** first asks you to select your preferred language. Move the selector to the language you want and select it by pressing **(A)**.

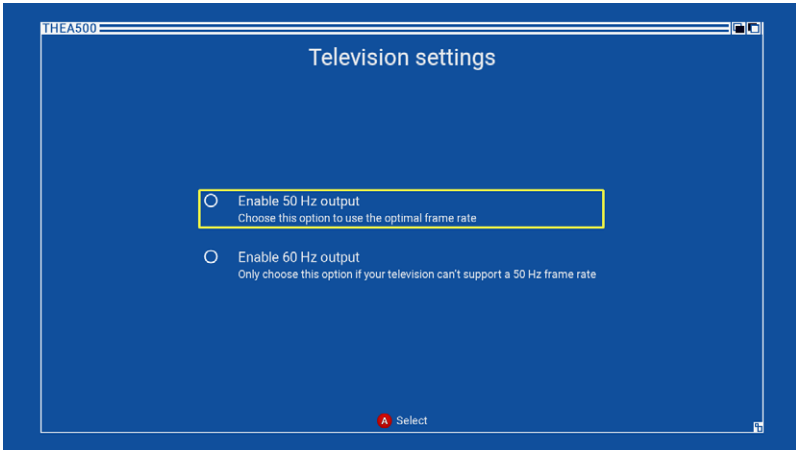


When you have selected a language, press **(B)** to move on to *Television settings*.

Note: This will only set the language of the user interface. The built-in games are all in English.

## Television settings

To complete the set up, **THEA500 Mini** will ask you to choose the video output requirement of your television, either *50 Hz output* or *60 Hz output*.



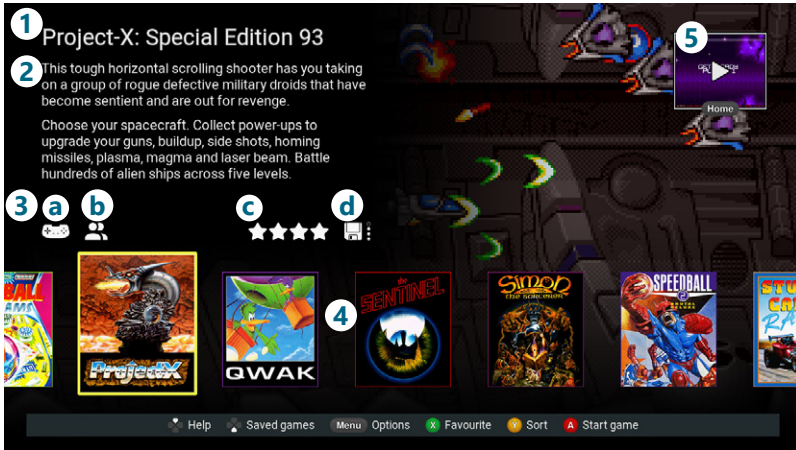
Move the selector to the required video output mode and select it by pressing **(A)**.

Tip: Most of the built in games were developed in Europe where 50 Hz was common, so it is best to choose the *50 Hz output*, if your TV supports it. Otherwise *60 Hz output* will work just fine, as **THEA500 Mini** employs some clever techniques to manage the output difference. If you are not sure if your TV supports 50 Hz, **THEA500 Mini** will test this before continuing.

Before you can proceed, you must test and confirm that your TV will work with the chosen video output mode by pressing **(X)**. **THEA500 Mini** will perform the test by switching to the chosen video output mode for 20 seconds. When the test starts you may see your TV screen go blank for a few seconds.

If your TV successfully resumes displaying the *Television settings* menu with the new mode selected, press **(Y)** to accept the mode. If the video test is not successful, identified by whether or not you can clearly see the *Television settings* menu during the test, wait until the test completes and **THEA500 Mini** will revert to the previous output mode.

# The game carousel





## 1 Current game title

## 2 Current game description




## 3 Current game information icons

### a Control type icons

These indicate what types of control are needed for the game.

All built in games show  indicating they can be played with **THEGAMEPAD**, and some also show  indicating they can additionally be controlled using **THEMOUSE**, depending on preference.

### b Number of players icon

This shows  for single player games,  for two player games, and  for games that can have more than two players. Such multiplayer games may be simultaneous or round robin style play.

### c Favourite stars

This shows the number of favourite stars you have given this game.

### d Saved games indicator

This shows whether any saved games have been stored for this game. The number of filled circles shows how many saved game slots are occupied.


## 4 Carousel of games

This carousel shows the box covers of the games included in **THEA500 Mini**, with the current game highlighted.


## 5 Suspended game

While a game is suspended, a miniaturised view of the suspended game is shown floating at the top-right of the screen. This suspended game may be resumed, or saved into one of four saved game slots per game.


## Selecting a game

Use  to scroll through the carousel of games and select the game you want. As each game is selected, the game title, description and information icons displayed at the top-left of the screen will update accordingly.



## Giving a game a favourite rating

Press  to add a favourite star to the current game. If the game already has four favourite stars, this will reset its number of favourite stars to zero.



## Sorting the games


Press  to sort the carousel of games by different criteria. These are *Title* (the default), *Author*, *Genre*, *Year of release*, *Publisher*, and number of *Favourite stars*.

## Playing a game


Select the game you wish to play from the carousel of games using  and press  to start it from the beginning.

If a game is started before a suspended game is saved, the suspended game will be discarded.


All of the included games can be played with the **THEGAMEPAD**, though some may also be played using **THEMOUSE**, as indicated by the control type icons  .

Some games have more controls than there are buttons on **THEGAMEPAD**. Where this is the case, those that are needed less frequently are assigned to a secondary group of controls activated by pressing and holding . This causes the other gamepad buttons to switch to their secondary control assignments. To view a game's controls, see "[Getting help for a game](#)" on [page 7](#)).

## Getting help for a game


Press  to view control help for the current game. This will show a diagram of THEGAMEPAD with each button labelled with its function within the game.




Some games have a set of secondary controls (see "[Playing a game](#)" on [page 6](#)). For these games press and hold  to show the secondary control functions of THEGAMEPAD buttons.

For games that have support for mouse control, press  to toggle between diagrams of THEGAMEPAD and THEMOUSE to view the help for each.

Tip: The included games that use a mouse will have the mouse controls duplicated by THEGAMEPAD. This allows the game to be played with THEGAMEPAD alone if necessary. Such mouse controls are usually assigned to the secondary controls of THEGAMEPAD.

For full instructions on how to play each of the 25 included games, visit [retrogames.biz/games/thea500-mini](http://retrogames.biz/games/thea500-mini) .

## Exiting and suspending a game

To suspend a game and return to the game carousel, press , or the power button once. A miniaturised view of the suspended game will appear floating in the top right corner of the screen.

Tip: Try not to suspend a game while in the middle of an intense action phase, as this can result in a game that is difficult to play when resumed.



## Resuming a suspended game

Press **Home** on THEGAMEPAD to resume a currently suspended game.

## Using the virtual keyboard

While playing a game, pressing **Menu** will bring up a virtual keyboard on the right hand side of the screen. This allows you to virtually press any of the standard Amiga keyboard keys. While the virtual keyboard is in operation the game will not respond to THEGAMEPAD. This is most useful for typing, for example entering your name for a high score table. For more complex keyboard functions (for example, pressing more than one key at once) see *"Using a USB keyboard" on page 34*.

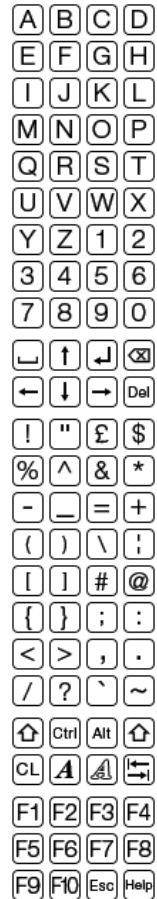
Move the selector to key you wish to virtually press and press **A**.

There are also some special shortcut functions you can quickly access using THEGAMEPAD:


### THEGAMEPAD button    Virtual keyboard key

- B**                                  ↵ Return
- X**                                  ⌫ Backspace
- Y**                                  Space

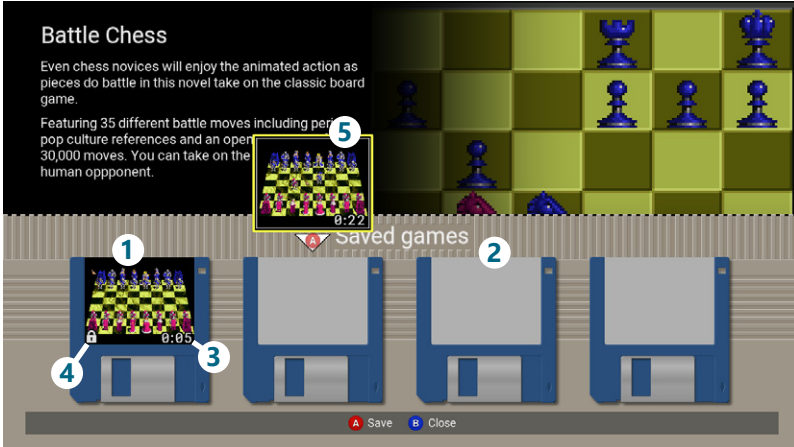
To close the virtual keyboard and resume gameplay with THEGAMEPAD, press **Menu**.



# Saving and loading suspended games


Pressing  will show the *Saved game* slots for the current game, where you can save a currently suspended game, or resume a previously saved game.

Each game has four slots for saved games, represented by four floppy disks.



- 1 Filled saved game slot
- 2 Empty saved game slot
- 3 Elapsed game time
- 4 Locked game slot indicator
- 5 Suspended game

## Saving a game

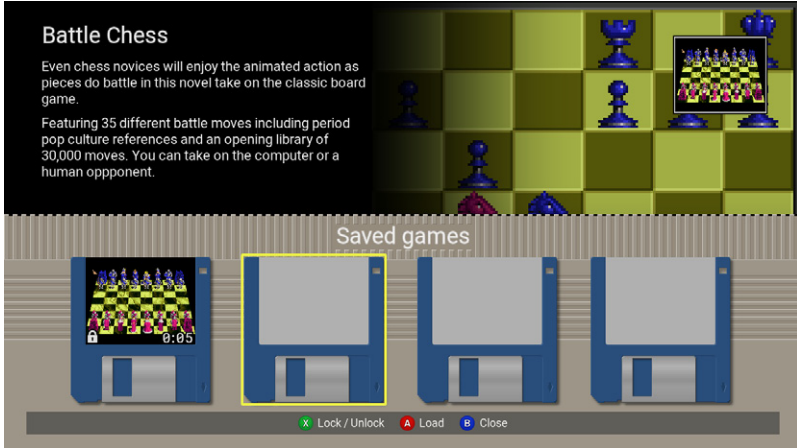
If there is a currently suspended game, the miniaturised suspended game will move down and hover above the first available *Saved game* slot (either the first blank slot, or otherwise the first unlocked slot). Pressing  will move the hovering suspended game to another slot.

Press **A** to save the game in the chosen slot. This will overwrite any game already in that slot. If a slot has been locked you will not be able to save a game into that slot until you unlock it (see "[Locking/unlocking a saved game slot](#)" on page 10).

## Loading a game

If there is a currently suspended game, the miniaturised suspended game will move down and hover above the first available *Saved game* slot. If this is the case and you want to discard it and load a previously saved game, press **⌘** to move the selector down to one of the occupied game slots.

If there isn't a currently suspended game, the selector will automatically move to the first occupied game slot.



Press **⌘** to select the saved game you wish to resume, and press **(A)** to load it.

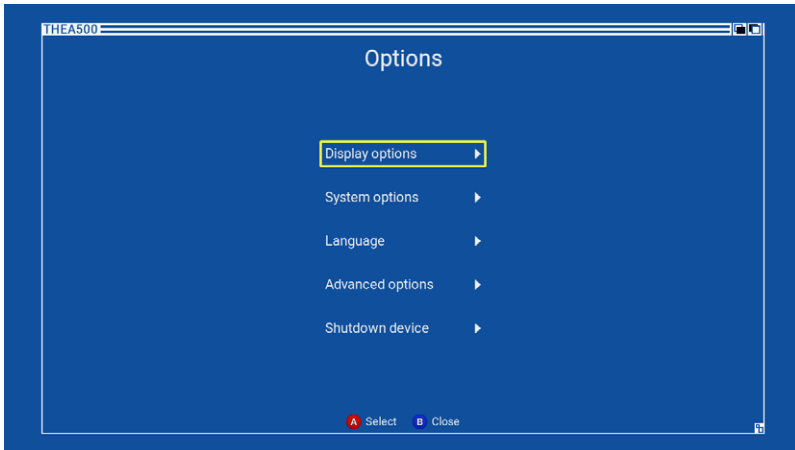
Note: Loading a previously saved game will discard any suspended game.

## Locking/unlocking a saved game slot

Move the selector to one of the occupied saved game slots and press **(X)** to lock that slot. This will prevent any game from being saved into that slot. Press **(X)** on an already locked slot to unlock it.

# Options

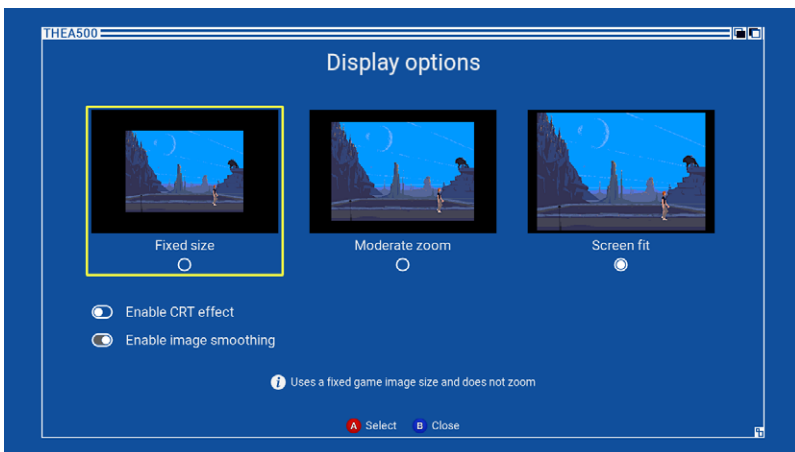
Press **(Menu)** on the game carousel to show the *Options* menu. These options control the operation of the entire console.



Move the selector with **(D-pad)** and press **(A)** to select a menu option.  
Press **(B)** to back out of any menu.

## Display options

This menu contains options to control how a game's image is displayed on the TV.



*Fixed size /  
Moderate zoom /  
Screen fit*

Choose one of these three display modes to change how **THEA500 Mini** scales the game image. The amount of scaling applied will depend on the size of the game image (which varies between games) and the scaling mode selected. These options do not alter the aspect ratio of the image.

*Fixed size* This does not scale the game image, and it will be surrounded by a black border.

*Moderate zoom* This will attempt to scale the game image by a whole number of pixels, but only when it will still fit on the TV screen without being cut off at the top or bottom. Therefore some game images will appear the same size as with *Fixed size* scaling, and others will be larger. The amount of black border around the image will vary with the scaling applied.

Note: If the setting *Advanced options* → *Television settings* → *Use screen edges* is turned off, the available screen height will be reduced, which may affect the amount of scaling applied.

*Screen fit* This will adaptively scale the game image so that it will fill the TV screen from top to bottom, maximising the size of the image. The scaling may not be a whole number of pixels, which can occasionally produce very slight scaling artefacts. Enabling *Image smoothing* or *CRT effect* will remove these. With this scaling mode, only minimal black borders are seen to the left and right of the game image.

Note: If the setting *Advanced options* → *Television settings* → *Use screen edges* is turned off, the available screen height will be reduced, which will slightly reduce the amount of scaling applied.

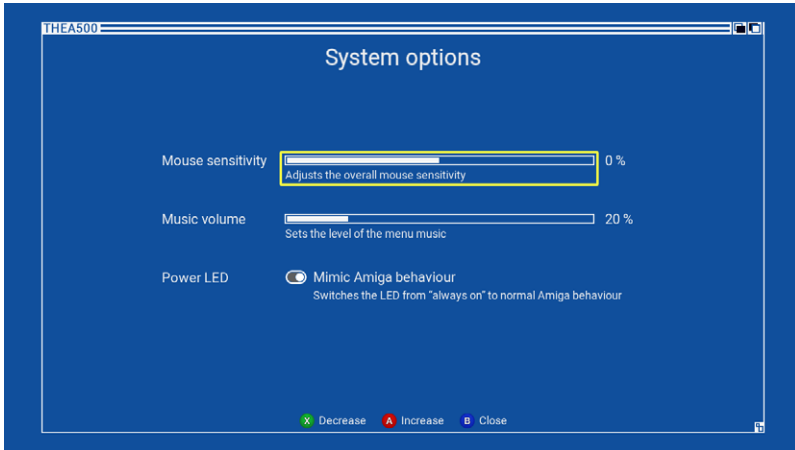
*Enable CRT effect* Enables an effect that simulates the scan lines of a classic CRT screen.

*Enable image smoothing* Smooths the game image to look less blocky on a large screen.

Note: These options only affect the appearance of the game image when being played, not the game carousel, menus, or virtual keyboard.

# System options

This menu controls system settings.



For controls that have a numerical value, press **(A)** to increase the value and **(X)** to decrease the value.

## *Mouse sensitivity*

Adjusts the overall mouse sensitivity. This affects all mouse-controlled games.

## *Music volume*

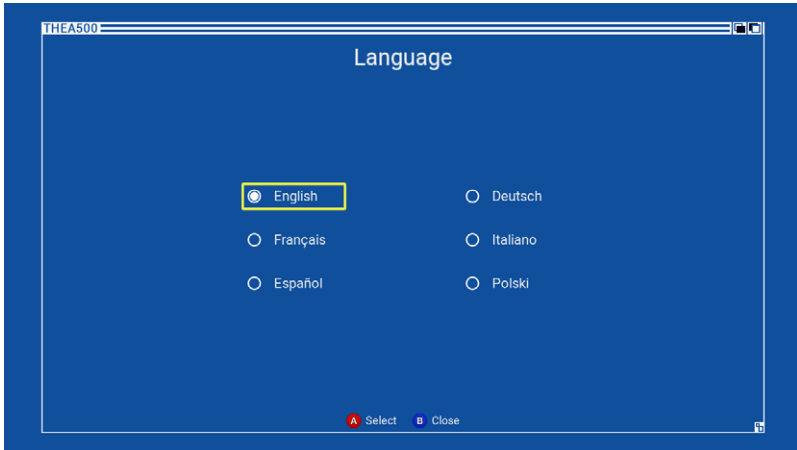
Set the level of the menu music. This does not affect the volume of a game's audio.

## *Power LED: Mimic Amiga behaviour*

When this option is turned on **THEA500 Mini's** power LED will mimic the behaviour of the original Amiga's power LED: that of being controlled by the running game. When this option is turned off, the power LED will remain lit while **THEA500 Mini** is turned on (this is the default behaviour).

# Language

This menu allows you to change the language THEA500 Mini uses to display the game descriptions and menus. The choices are *English*, *Deutsch*, *Français*, *Italiano*, *Español* and *Polski*. It does not affect the 25 included games, which are in English.

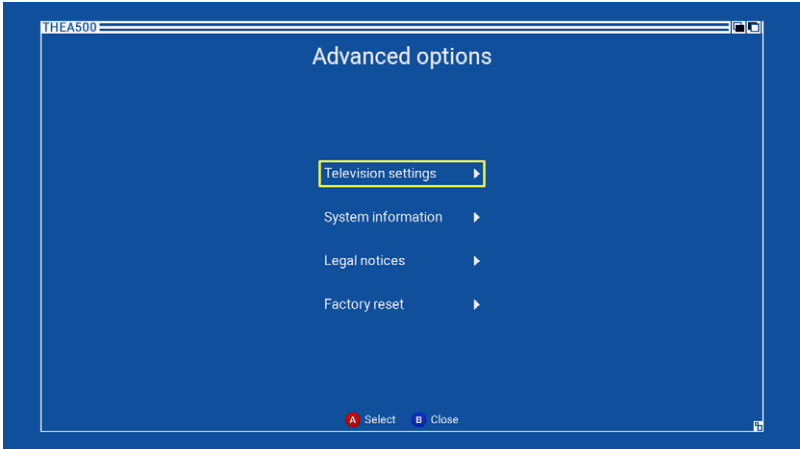


# Shutdown device

This option safely shuts down THEA500 Mini. This will discard any suspended game and power off the device. Alternatively, you can shut down the device by pressing and holding the power button for two seconds.

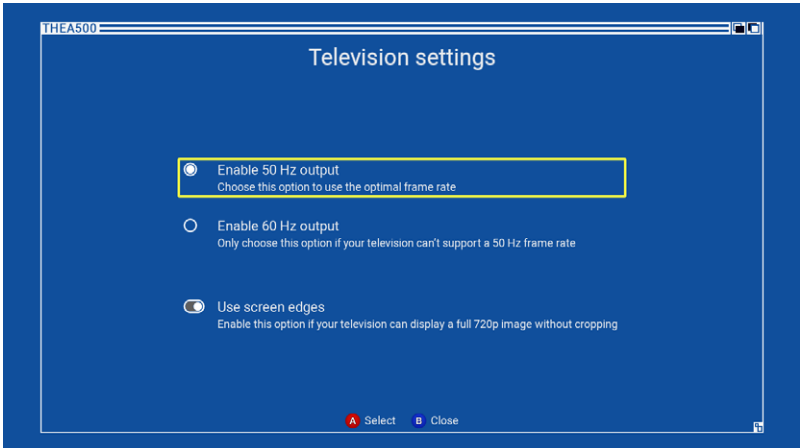
# Advanced options

This menu contains options for more advanced users and rarely used functions.



## Television settings

This menu contains options for controlling THEA500 Mini's output to a television or monitor.





*Enable 50 Hz output /  
Enable 60 Hz output*

Choose **THEA500 Mini**'s HDMI video output frequency. Most of the built in games were developed in Europe where 50 Hz was common, so it is best to choose 50 Hz output if your TV supports it. Otherwise 60 Hz will work fine.

If you change the output mode you will need to perform a TV test by pressing (X). When activated, **THEA500 Mini** will change to the new output mode for 20 seconds.

If the image is visible during the TV test, press (Y) to accept the new mode. If not (for example, if all that is displayed is a black screen) wait until the test has completed and **THEA500 Mini** will revert to the previous output mode.

If you have chosen a new output mode, **THEA500 Mini** will not allow you to close this menu until you test and accept it.


*Use screen edges*

Enable this option if your television can display a full 720p image without cropping. Disable this option if you find the edges of the image are being clipped off. This is enabled by default.

## System information

This shows **THEA500 Mini**'s current firmware build, and will also allow you to upgrade to a newer firmware build if one is present on an inserted USB stick (see "[Updating the firmware](#)" on page 29).

## Legal notices

This option displays legal notices relevant to **THEA500 Mini**. The text may be scrolled up and down using .

## Factory reset

This will reset all settings to their default values and erase all saved games for the 25 installed games. This function can also be initiated by holding the power button down while **THEA500 Mini** powers on.

A factory reset will not revert any firmware upgrades, nor will this erase the *Saved game* slots and settings for user supplied programs held on USB stick.

# Loading your own programs

THEA500 Mini allows you to load your own programs from a USB stick. THEA500 Mini uses a program format called WHDLoad which was developed for the Amiga to allow floppy disk based programs to be quickly loaded from a hard disk without the user needing to swap floppy disks.

There are four requirements that must be met for THEA500 Mini to recognise and load a WHDLoad program:

- that the USB stick is formatted with a FAT32 MBR filesystem,
- that the USB stick has *THEA500 WHDLoad Package* installed on it,
- that the WHDLoad program is an LHA file,
- that the WHDLoad program is a complete archive of the program and not the program's WHDLoad installer.

When you insert a correctly formatted USB stick into THEA500 Mini, an additional item will appear on the game carousel titled *USB Media Access*. Select this item and press (A) to browse and run WHDLoad programs from the USB stick.

*THEA500 WHDLoad Package* must be installed on the USB stick. It contains information on thousands of WHDLoad programs for the Amiga and helps THEA500 Mini load and run them.

On selecting *USB Media Access* and pressing (A), THEA500 Mini will tell you if *THEA500 WHDLoad Package* is not installed on the USB stick.



If you see this warning, follow the on-screen instructions, those on the Retro Games website, and in this manual to obtain and install *THEA500 WHDLoad Package* onto the USB stick.

You should regularly check our website for updates to *THEA500 WHDLoad Package*.

## Installing THEA500 WHDLoad Package

**THEA500 Mini** requires *THEA500 WHDLoad Package* to be installed on the USB stick that is being used with **THEA500 Mini**.

Full instructions and *THEA500 WHDLoad Package* ZIP file can be found at [retrogames.biz/products/thea500/support/whdload](https://retrogames.biz/products/thea500/support/whdload) [↗](#)

To install *THEA500 WHDLoad Package* on a USB stick:

- 1 Format the USB stick with a FAT32 MBR filesystem
- 2 Download the *THEA500 WHDLoad Package* ZIP file
- 3 Unzip *THEA500 WHDLoad Package* ZIP file to the root directory of your USB stick
- 4 Confirm that USB stick contains the directory THEA500 at the top directory level

## Checking for updates to THEA500 WHDLoad Package

*THEA500 WHDLoad Package* will periodically be updated with improvements and additions, so it is useful to make sure you are on the latest version.

To check what version of *THEA500 WHDLoad Package* you have installed on your USB stick, view the contents of the text file `THEA500/version.txt` which was written to your USB stick when you installed or last updated *THEA500 WHDLoad Package*.

The latest version of *THEA500 WHDLoad package* can be checked at [retrogames.biz/products/thea500/support/whdload](https://retrogames.biz/products/thea500/support/whdload) [↗](#)


To update *THEA500 WHDLoad Package*:

- 1 Download the latest *THEA500 WHDLoad Package* ZIP file
- 2 For safety, rename THEA500 directory on your USB stick to something else, such as `THEA500_previous`
- 3 Unzip *THEA500 WHDLoad Package* ZIP file to the root directory of your USB stick
- 4 Check that the USB stick contains the replacement directory THEA500
- 5 Check that you have the latest version of the package by reviewing the contents of the text file `THEA500/version.txt`

## Browsing programs on the USB stick

Selecting the *USB Media Access* carousel item and pressing (A) will launch a file browser that you can use to load your own program files. Only directories and files with an .1ha file extension will be shown.




Use  to navigate through the contents of the USB stick. To select a program or descend into a directory, press (A). To step back out of a directory, press (Y).

Once you have selected a program, its filename will be displayed in the *Current media* section at the bottom of the screen. To start the selected program press (Home), and to adjust its settings press (Menu).

To return to the game carousel press (B). The description shown for the *USB Media Access* carousel item will reflect the *Current media* filename.

## Saving or loading a suspended USB stick program

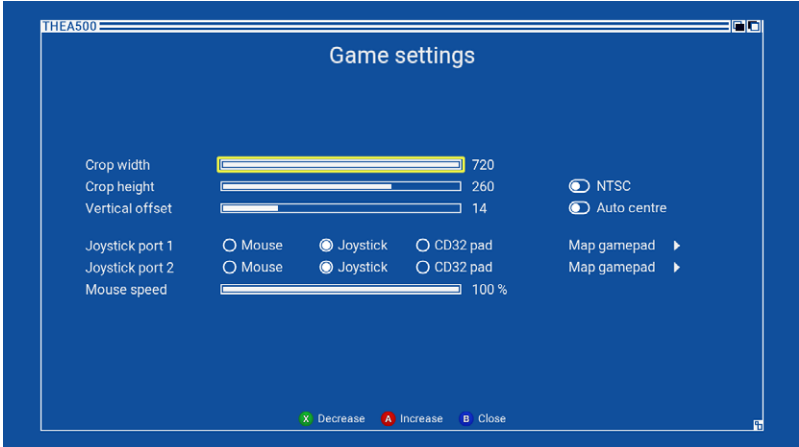
For USB stick programs, the procedure for loading a *Saved game* is slightly different to that for built in games.

When the *USB Media Access* carousel item is selected, pressing  from the game carousel will show the *Saved game* slots for the program currently selected on the USB stick, as shown in the game description for the *USB Media Access* item.

Therefore, to load or save a suspended user program, you first need to make sure it is the one currently selected on the USB stick.

# Adjusting the settings of a USB stick program

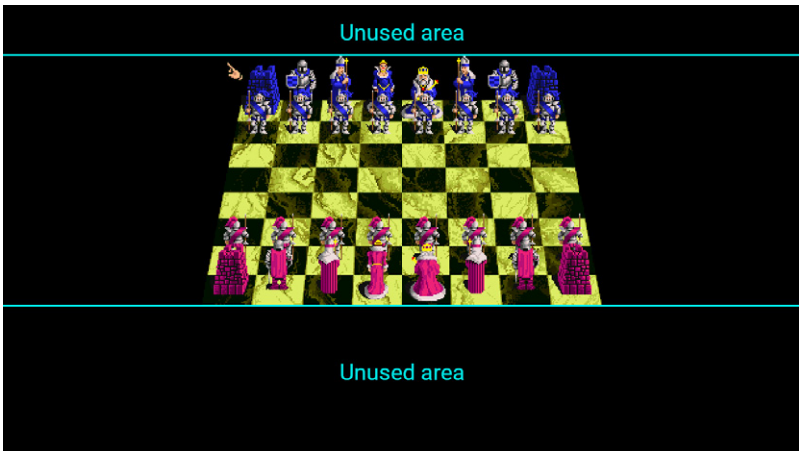
Once you have selected a program, you may modify settings such as gamepad controls and image size before starting the program, by pressing **Menu**. These settings can also be changed for the currently suspended program.



For controls that have a numerical value, press **A** to increase the value and **X** to decrease the value.

## Adjusting the image position and size

Many programs do not utilise the full vertical resolution of the Amiga, will often have a large black border at the top and bottom the screen, and do not always centre the image on the screen. THEA500 Mini will default to showing the full resolution of the Amiga, which will include these black borders.

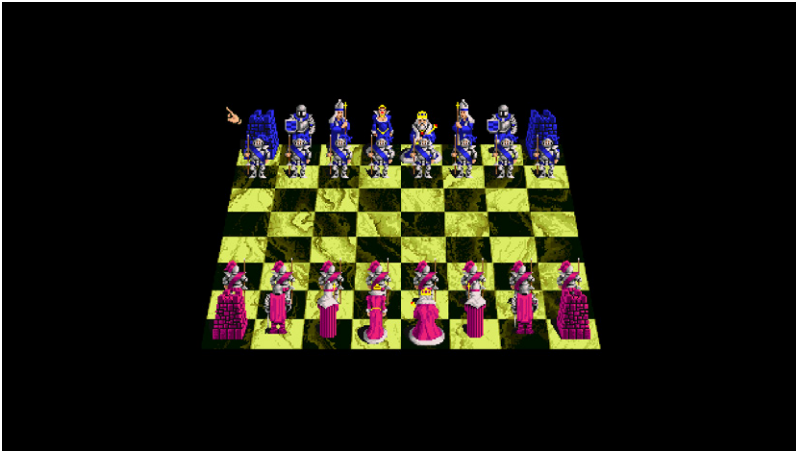


The size of these borders will affect how big the image appears on the TV, according to the scaling chosen in *Display options*. **THEA500 Mini** provides settings that can help manage the size of the image, and an *Auto crop* feature to make this easier to configure.

### Auto centre

It is common for the image to be off-centre in Amiga programs. To help position each program's image in the centre of the screen *Auto centre* can be enabled.

Enabling *Auto centre* will cause **THEA500 Mini** to continually monitor the position of the image and alter it accordingly, which is most often a vertical adjustment.



Enabling this option can sometimes result in the image appearing to slide into place towards the centre of the screen, where it will usually stay. For the few programs that this happens frequently to, it may be preferable to instead configure a fixed *Vertical offset* along with a *Crop* rectangle.

### Crop rectangle

To maximise the size of the image and remove the unused and unnecessary black borders at the top and bottom of the screen, a *Crop* rectangle can be configured to define the region of the image that **THEA500 Mini** will display.

**THEA500 Mini** can perform this configuration automatically, and is described in "[Auto crop](#)" on page 23.

The remainder of this section describes how to configure the *Crop* rectangle manually, in case you want to make any fine adjustments.

The aim is to adjust the *Crop height* so that it is equal to the height of the image without the top and bottom borders, and to increase the *Vertical offset* so that the rectangle starts at the first line of the image, so that the top black border is eliminated.



*Crop height* is only required when *Auto centre* is not being used. Adjusting *Crop height* will disable *Auto centre*, and vice versa.

It is usually better to set the *Crop* rectangle to suit the program's main game-play screen and not its menus, since the size of the image often changes between the title, menu and play screens.

When configured, **THEA500 Mini** will know exactly how much and what part of the image is important, and will present that according to the *Display options* setting. For example, this image is displayed using *Screen fit*:



To set the *Crop* rectangle correctly it will usually be necessary to repeatedly suspend the game, adjust the *Crop* rectangle and then resume the game to make a visual check. It is therefore recommended that you enable *Screen fit* in the *Display options* menu when performing a visual check, since it will make it easier to see when the settings are correct.

To make this configuration a simple and often one-click process, **THEA500 Mini** also provides an *Auto crop* function.

## Auto crop

This function attempts to automatically set the size of the image to minimise the black borders shown at the top and bottom of the screen (particularly when using the *Screen fit* display mode).

The *Auto crop* function is only available for a game that is currently suspended. In this case an additional button **(Y)** for *Auto crop* will be shown at the bottom of the *Game settings* menu.

When activated, the *Auto crop* function will analyse the image at the point it was suspended and automatically calculate the *Crop* rectangle and position. This is nearly always successful and only occasionally requires a slight tweak to the settings afterwards.

### Setting the image size the easy way

A quick and effective procedure for optimising the size of the image is as follows:

- 1 Select the program to launch from USB stick
- 2 Enter *Game settings*
- 3 Enable *Auto centre*
- 4 Configure the mouse and joystick ports (see "[Configuring joystick and mouse ports](#)" on page 24)
- 5 Launch the program and proceed to the main game play screen
- 6 Suspend the program by pressing **(Home)**
- 7 Enter *USB Media Access* → *Game settings*
- 8 Activate *Auto crop* by pressing **(Y)**
- 9 Press **(B)** twice to return to the game carousel
- 10 Resume the program by pressing **(Home)**

If you find that the image moves around too often with *Auto centre* enabled, repeat the procedure but instead disable *Auto centre* at step 3.



## NTSC

When the original Amiga was designed there were two main television standards in use, so the Amiga was available in two versions (or could be switched between versions): one generating the common PAL television standard, and the other generating the NTSC standard used predominantly in North America.

The NTSC version has a shorter display height than PAL, and a few timing differences that will sometimes adversely affect the operation of a program, the majority of which were written for PAL models.

The *NTSC* option will switch **THEA500 Mini** into NTSC mode so that the running program will act as if it is running on an NTSC Amiga.

Note: Enabling NTSC will not change **THEA500 Mini**'s HDMI Video output to 60 Hz.

## Adjusting the mouse speed

Programs that use the mouse will typically vary in sensitivity to its movement. The *Mouse speed* setting allows you to adjust this for individual programs, perhaps to achieve a consistent response across all programs, or just to make some easier to control.

This is different from changing the sensitivity of the mouse itself, which will affect every game equally. To do this, go to *Options* → *System settings* and adjust *Mouse sensitivity*.

## Configuring joystick and mouse ports

The original Amiga had two joystick ports to which a mouse and/or joysticks could be connected. The *Game settings* menu allows you to specify, for each virtual port, whether a *Mouse*, *Joystick* or *CD32 pad* is connected, as required by the program.

Joystick port 1	<input type="radio"/> Mouse	<input checked="" type="radio"/> Joystick	<input type="radio"/> CD32 pad	Map gamepad ▶
Joystick port 2	<input type="radio"/> Mouse	<input checked="" type="radio"/> Joystick	<input type="radio"/> CD32 pad	Map gamepad ▶

It is common for Amiga programs to require a mouse to be connected to port 1, and a joystick to port 2, whereas some multiplayer games may support joysticks connected to both ports.

If there are multiple **THEGAMEPADs** connected to the USB ports of **THEA500 Mini**, **THEGAMEPAD** that launches the program is the one that will be designated as connected to the first Amiga port which is not configured for a mouse.

For example, if the program is configured as having a *Mouse* connected to *port 1* and a *Joystick* to *port 2*, when the game is launched by pressing **Home** on a **THEGAMEPAD**, that **THEGAMEPAD** will be connected to Amiga *port 2* and any other **THEGAMEPAD**s will be ignored.

Alternatively, if the program is configured as having a *CD32 pad* connected to *port 1* and a *Joystick* to *port 2*, a **THEGAMEPAD** that launches the program will be connected to Amiga *port 1* (being the first non-*Mouse* port) and if another **THEGAMEPAD**s is plugged into **THEA500 Mini**, it will be connected to *port 2*.

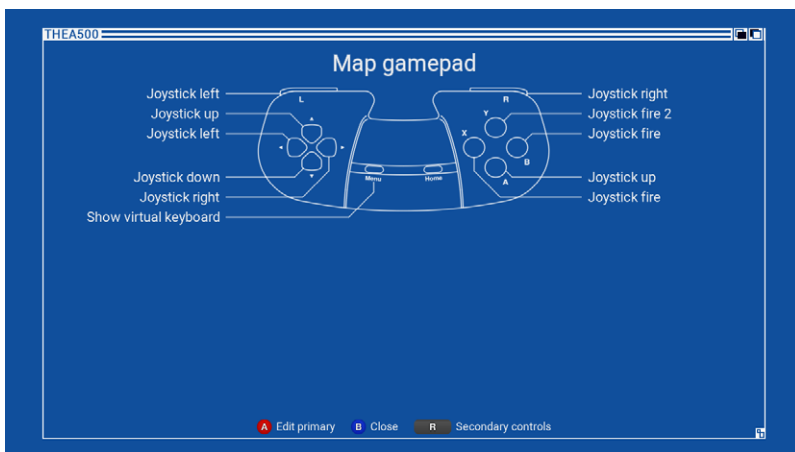
By default **THEGAMEPAD** will operate as both a *Joystick* or a *CD32 pad*, depending on how the port is configured.

It is possible to remap the default actions assigned to each button of **THEGAMEPAD** for each port through the *Map gamepad* option. This also allows keyboard keys or other actions to be assigned to **THEGAMEPAD** buttons.

## Mapping the gamepad

When a port is configured as a *Joystick* or *CD32 pad* the connected **THEGAMEPAD** can be reconfigured to assign any control or action to any button, choosing from a combination of *Joystick actions*, *CD32 pad actions*, *Keyboard actions*, *Mouse actions* and *Special actions* such as opening the virtual keyboard.

The current action maps of a *port* can be viewed and edited by selecting its *Map gamepad* option. This will show a diagram of **THEGAMEPAD** with a label on each button showing the current assigned action.



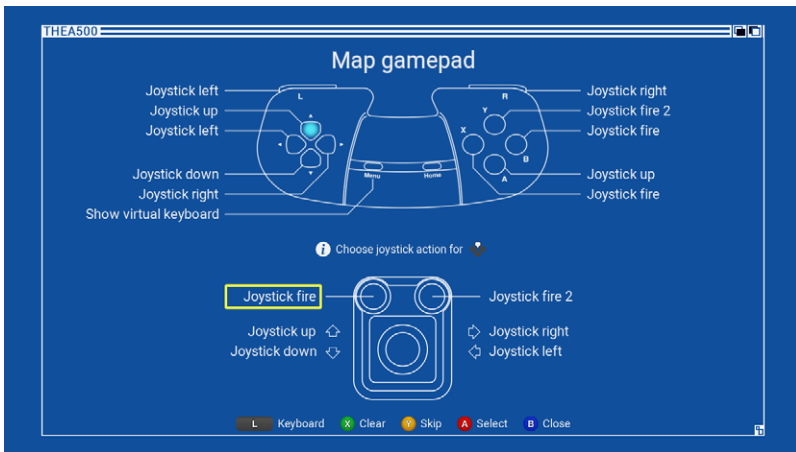
By pressing and holding **R**, the diagram labels will switch to show any secondary actions that have been assigned (the secondary action map).

To edit the primary action map, press (A). To edit the secondary action map, press (R)+(A).

Note: When the secondary action map is edited, any action on the (R) button on the primary action map will be overwritten with the *Secondary controls* action. If this is subsequently edited to become any other action, the secondary controls will not be accessible during game play.

When you start editing the map you are first shown the group of *Joystick actions* to choose from, represented as a labelled diagram of a joystick. This diagram will change as you cycle through the other action groups of *Joystick*, *Keyboard*, *CD32 pad*, *Mouse* and *Special* by pressing (L).

## Assigning joystick actions



While editing, **THEA500 Mini** positions a light blue indicator over **THEGAMEPAD** button currently being assigned. For this button:

- To change the assigned action, use (D) to select the joystick action you want to assign and press (A)
- To keep the assigned action, press (Y)
- To clear the assigned action (leaving that button unassigned), press (X)
- To make a selection from a different action group, press (L)

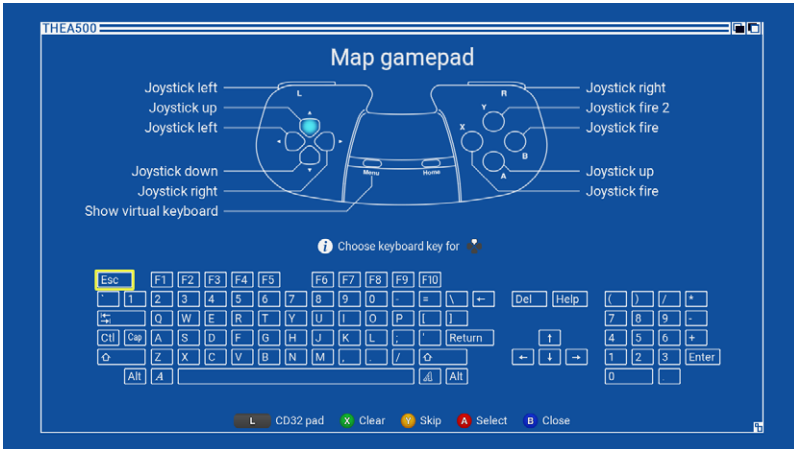
Once an assignment is made, cleared, or skipped, **THEA500 Mini** will move the blue indicator to the next button, where you repeat the process until all buttons have been assigned, cleared, or skipped.

When assigning *Joystick actions*, pressing (L) will switch to the group of *Keyboard actions*.

## Assigning keyboard actions

Assigning *Keyboard actions* to **THEGAMEPAD** follows the same process as assigning *Joystick actions*. **THEA500 Mini** will display a representation of an Amiga keyboard and allow keys to be assigned to **THEGAMEPAD** buttons.

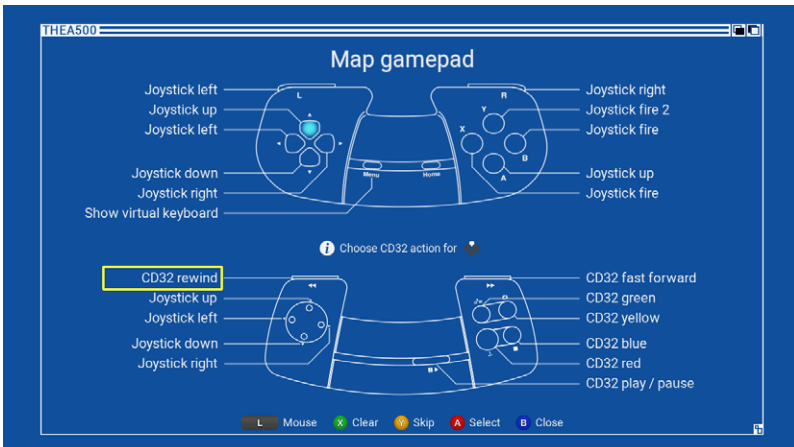
Note: You can only assign a single keypress to a **THEGAMEPAD** button.



Press **L** to switch to the group of *CD32 pad actions*.

## Assigning CD32 pad actions

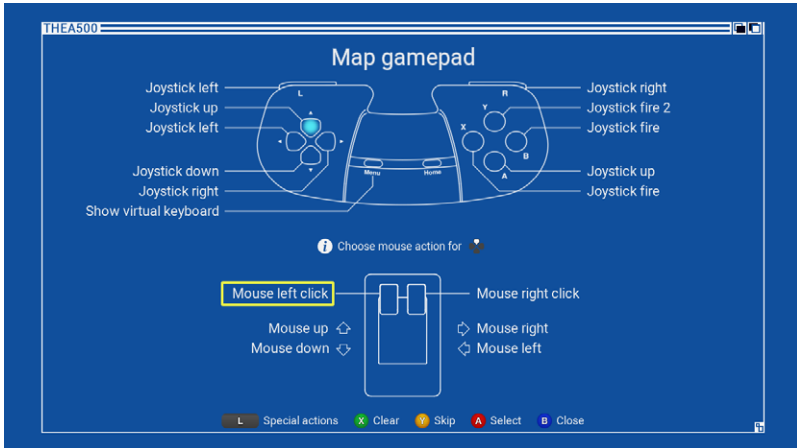
Assigning *CD32 pad actions* to **THEGAMEPAD** follows the same process as assigning *Joystick actions*. **THEA500 Mini** will display a representation of a CD32 pad and allow its actions to be assigned to **THEGAMEPAD** buttons.



Press **L** to switch to the group of *Mouse actions*.

## Assigning mouse actions

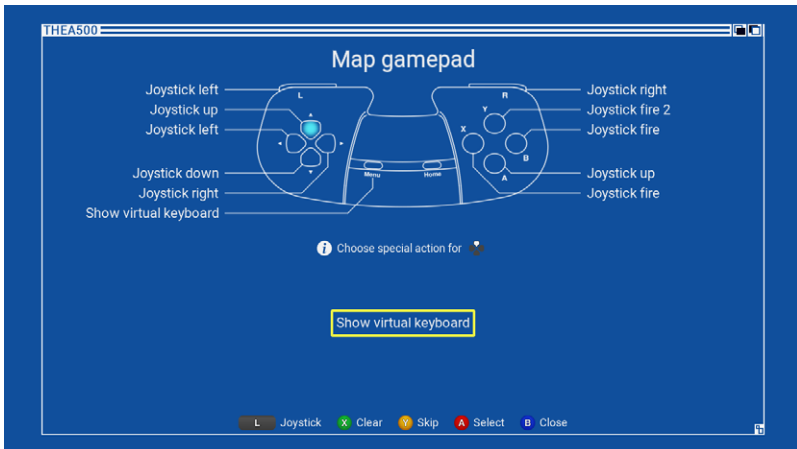
Assigning *Mouse actions* to **THEGAMEPAD** follows the same process as assigning *Joystick actions*. **THEA500 Mini** will display a representation of **THEMOUSE** and allow its actions to be assigned to **THEGAMEPAD** buttons. This allows programs that require mouse input to be controlled from **THEGAMEPAD**.



Press **L** to switch to the group of *Special actions*.

## Assigning special actions

Assigning *Special actions* to **THEGAMEPAD** follows the same process as assigning *Joystick actions*. **THEA500 Mini** will display a list of *Special actions* that can be chosen from which, at the time of writing, is the single action *Show virtual keyboard*. Typically this would be assigned to **Menu**.



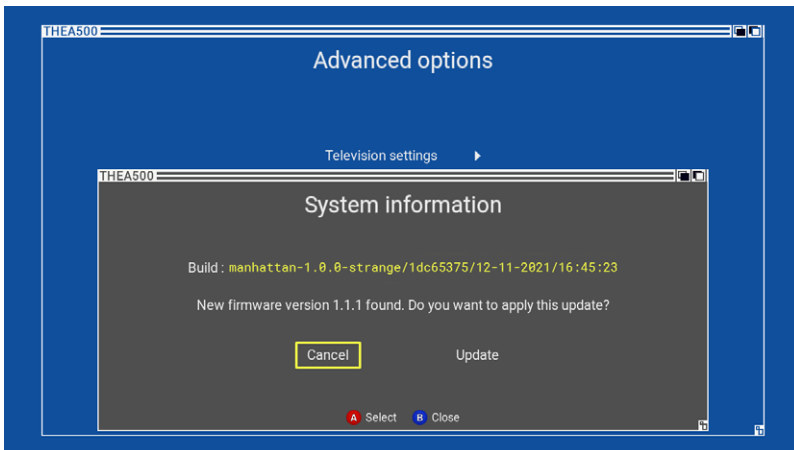
Press **L** to switch to the group of *Joystick actions*.

# Advanced features

## Updating the firmware

Retro Games may occasionally release new firmware versions for **THEA500 Mini** to correct issues, and/or add new features or games.

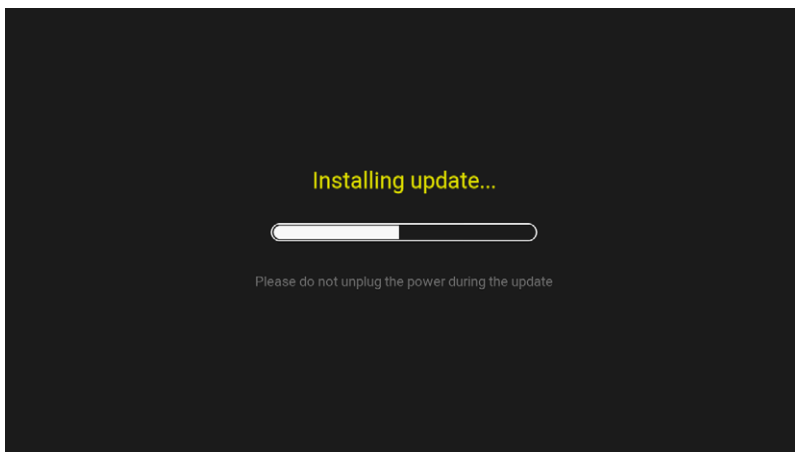
Entering the menu *Options* → *Advanced options* → *System information* will show the current *Build* version of the firmware.



To update the firmware:

- 1 Go to [retrogames.biz/support/thea500-mini/upgrade](https://retrogames.biz/support/thea500-mini/upgrade) and check if the latest version on the website is greater than that reported by **THEA500 Mini**.
- 2 If a later firmware is available, download it.
- 3 Copy the firmware onto the root directory of a FAT32 MBR formatted USB stick. Do not place it in a folder.
- 4 Insert the USB stick into **THEA500 Mini**.
- 5 Go to *Options* → *Advanced options* → *System information*.
- 6 **THEA500 Mini** will check if there is a newer firmware on the USB stick and, if so, give you the options to *Update* or *Cancel*.
- 7 Select *Update* to begin the installation process.

While installing, **THEA500 Mini** will display a progress bar which will fill up from left to right as the update proceeds. It is important not to remove the USB stick or power from **THEA500 Mini** while the update is in process.



When the update is complete, **THEA500 Mini** will reboot and return you to the game carousel. If you wish to verify that the update has been applied, go to *Options* → *Advanced options* → *System information* and check the *Build* version that is displayed.

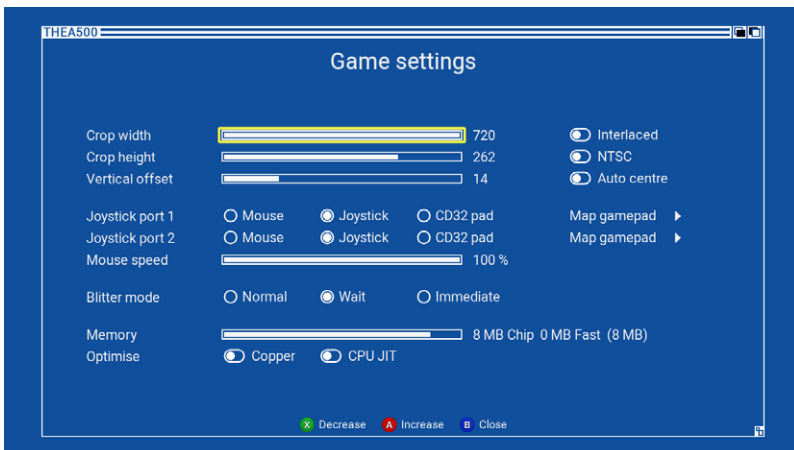
## Expert-user game settings

The majority of programs that are run on **THEA500 Mini** will behave as they did on the original Amiga. Occasionally a program might make unusual or heavy use of the CPU, co-processor or blitter which may impact its performance or sometimes cause display glitches.

There are a few settings that can be adjusted to resolve these quirks in most cases, but they are normally hidden from view since they require some understanding of the Amiga hardware to set correctly.

To reveal these advanced game settings, a USB stick with *THEA500 WHDLoad Package* installed must be plugged into one of **THEA500 Mini**'s USB sockets. From the game carousel go to *Options* → *Advanced settings* and enable *Expert mode*.

When *Expert mode* is enabled, *Game settings* will show three additional sections (*Blitter mode*, *Memory*, and *Optimise*) and an additional display switch (*Interlaced*).



### Interlaced

If the program being run shows a high resolution image that appears to rapidly judder slightly, it is exploiting a feature of old cathode-ray-tube (CRT) televisions to double the vertical resolution of the display. This technique is called "interlacing", and works by alternately sending odd and even display lines to the television as successive images. On a CRT television these images will appear to merge together, but on modern televisions they cause a visible judder.

When the *Interlaced* option is enabled, **THEA500 Mini** will mimic the interlace capability of a CRT television to remove the judder.



## Blitter mode

The blitter is a component of the Amiga that can efficiently transfer large sections of data in memory on behalf of the CPU, freeing the CPU to do other things. The behaviour of **THEA500 Mini** blitter can be modified by setting the *Blitter* mode to one of three modes:

*Normal* In this mode the **THEA500 Mini** blitter will behave exactly the same as an original Amiga blitter. This can sometimes cause image corruption when older games are run at a CPU speed higher than they were written for (see the *Wait* mode for more details).

*Wait* Some older programs, usually written for the Amiga 500, assume the blitter will have finished what it was doing before they next need it. However, when run on an Amiga with a faster CPU (such as the A1200) this is often not the case and new commands are sent to the blitter before it has finished processing the last. This will usually lead to image glitches.

Setting the *Blitter* mode to *Wait* will pause the CPU when it attempts to send new commands to the blitter before the current commands have completed.

*Immediate* This puts the blitter into turbo mode where commands complete almost immediately, so the CPU does not need to wait before sending new commands. This can increase performance, but at the risk of breaking some programs that expect the blitter to take a certain amount of time.

## Adjusting the memory available to a program

By default THEA500 Mini provides 8 MB of Amiga chip memory for a program to run, which should be more than enough for most programs. However, there may be some that expect less than this, and others that run better with a little more.

The *Memory* slider allows you to set the memory from 512 KB to 10 MB, allocating the required amount from the following combinations of chip memory and fast memory:

Chip memory	Fast memory	Total memory
512 KB	0 MB	<b>512 KB</b>
1 MB	0 MB	<b>1 MB</b>
2 MB	0 MB	<b>2 MB</b>
4 MB	0 MB	<b>4 MB</b>
2 MB	2 MB	<b>4 MB</b>
2 MB	4 MB	<b>6 MB</b>
8 MB	0 MB	<b>8 MB</b>
2 MB	8 MB	<b>10 MB</b>

## Optimising Amiga CPU performance

The Amiga CPU emulated at the heart of THEA500 operates by default in “accuracy” mode, where it aims for software compatibility over efficiency.

Occasionally some CPU intensive programs benefit from having *Optimise: CPU JIT* enabled, which makes the emulated Amiga CPU prioritise efficiency over compatibility. Because compatibility is reduced, this should be used with care.

## Optimising Amiga co-processor performance

The Amiga co-processor, or copper, is a simple processor that is synchronised with the video generator. Programs use the copper to create graphical and colour effects, and to increase the number of sprites that can be displayed at once.

Programs that make heavy use of the copper, for example to rapidly change the colours on screen, can sometimes be made to run more smoothly by enabling the *Optimise: Copper* option. This makes the copper take some shortcuts which can break some programs, so should be used with care.

# Using your own peripherals

## Using third-party controllers

While THEA500 Mini has been designed to work best with the included peripherals, THEGAMEPAD and THEMOUSE, it is also compatible with Retro Games' THEJOYSTICK, as well as some third-party controllers and joysticks.

The button designations of most USB controllers follow one of the three conventions established by Microsoft (Xbox), Sony (Playstation) and Nintendo. The following table shows how the buttons of these, and THEJOYSTICK, correspond to those of THEGAMEPAD.

Xbox	Playstation	Nintendo	THEJOYSTICK	THEGAMEPAD
A	×	B	Right fire	(A)
B	○	A	Left fire	(B)
X	□	Y	↙ ↘	(X)
Y	△	X	↗ ↖	(Y)
LB	L1	L	○ ● ○ ○	(L)
RB	R1	R	● ○ ○ ○	(R)
Back	Select	Select	○ ○ ● ○	(Menu)
Start	Start	Start	○ ○ ○ ●	(Home)

## Using third-party mice

THEA500 Mini may be compatible with other USB mice, but you may find that the sensitivity is different to the included THEMOUSE. If this is the case, you can alter the system mouse sensitivity by adjusting *Options* → *System settings* → *Mouse sensitivity*.


## Using a USB keyboard

If you plug any standard USB keyboard into one of THEA500 Mini's USB ports, that keyboard will function much like an original Amiga keyboard.

If you use a keyboard with a US QWERTY layout, most of the keys will function as you would expect. For other layouts, press the key in the same physical position as the key you wish to press on a standard US QWERTY layout. For example, if you have a French AZERTY layout keyboard, pressing "A" will act as if you had pressed "Q" on the Amiga keyboard.

Some Amiga keyboard keys do not exist on a modern USB keyboard, so are mapped to the following keys:


**Amiga key**

 Left solid Amiga 'A'

 Right hollow Amiga 'A'

Help

**USB keyboard key(s)**

 Left Windows logo / Left Meta / Insert

 Right Windows logo / Right Meta / Home

Page Down

On the Amiga keyboard there are also the keys "(" and ")" on the numeric keypad. These cannot be pressed using a USB keyboard, but can be pressed using the virtual keyboard (see ["Using the virtual keyboard" on page 8](#)).

# Troubleshooting

## Power indicator does not light

To turn on **THEA500 Mini**, press the power button once. If after a few seconds the power LED does not light and you see nothing on the TV, check that you are using a suitable 5V/1A (5W) USB power adapter, and that the power adapter is working. Unplug any controllers or USB sticks that you have attached to **THEA500 Mini**. Also check the power cable and test by exchanging it for a known working cable.

## Blank screen seen on the TV

If **THEA500 Mini** power indicator is lit but the TV shows no picture, check the HDMI cable is correctly connected at both ends, and if necessary try a different cable that is known to be working. Also it may be that **THEA500 Mini** is using a video output mode that your TV does not support. See "[\*I have chosen a video output mode that is not supported by my TV\*](#)" on page 37.

## No sound heard from my DVI monitor

**THEA500 Mini** is not designed to be used with a DVI monitor nor is it supported when done so. **THEA500 Mini** may appear to be compatible with DVI monitors through an HDMI-to-DVI converter, but the DVI standard does not support audio, so even if you see a picture you will hear no sound. It may be possible to use a converter that is capable of feeding audio separately, but this is done at the user's own risk.

## THEGAMEPAD or THEMOUSE is not responding

Do not unplug or plug in a **THEGAMEPAD** or **THEMOUSE** while a game is running as they may stop responding. If this happens, give the power button a short single press. This will suspend the current game and return you to the game carousel. After a few seconds **THEGAMEPAD** or **THEMOUSE** should be detected, but if not, unplug the input device and then plug back in after 5 seconds.

## I have chosen a video output mode that is not supported by my TV

If you have accidentally chosen an output mode in *Television settings* that your TV cannot display, or are now using a TV that doesn't support that mode, there are two options. Either:

- Plug **THEA500 Mini** into a TV that does support the current output mode and then change the mode in *Options* → *Advanced settings* → *Television settings* (See "**Television settings**" on page 4). Or,
- Force a factory reset. If turned on, turn **THEA500 Mini** off by pressing and holding the power button for approximately two seconds (until the power indicator goes out). Wait 10 seconds. Perform the factory reset by pressing and holding the power button until the welcome logo appears. You will then be guided through the initial setup sequence which includes choosing an output mode supported by the TV (See "**First-time setup**" on page 3).

Note: Forcing a factory reset will delete your saved games and settings.

## The edges of the TV picture are being chopped off

It is likely that your TV cannot display a full 720p picture or that you have some picture scaling options turned on in your TV settings.

Make sure to disable any scaling options in your TV settings so it is able to display a full unmodified 720p picture. If your TV cannot display a full 720p picture, turn off **THEA500 Mini**'s setting *Use screen edges* in *Options* → *Advanced settings* → *Television settings*. This will usually help reduce or even eliminate the issue with the TV.

## The TV picture appears to lag behind the game action

HD TVs often employ digital processing of the incoming TV picture. Aware of how this affects video games, they usually provide a setting to enable "gaming mode" (or a similarly named feature). Ensure that you enable this setting for the video input channel you are using for **THEA500 Mini**.

## USB stick is not recognised

**THEA500 Mini** will only recognise USB sticks that are formatted with the FAT32 filesystem with a Master Boot Record (MBR). This is a standard format that can be created with all operating systems.

## THEA500 Mini gets warm

This is normal. **THEA500 Mini** contains a powerful processor that works very hard to recreate the authentic gaming experience of the original Amiga, and in doing so it generates a little heat. **THEA500 Mini** contains lots of vents on the upper and lower surfaces of the case for this reason, and it is important not to block or impede this ventilation (see "[Ventilation](#)" on page ii). **THEA500 Mini** should be moved away from other sources of heat and it should be ensured that there is plenty of airflow around the case.

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