

Documentation
of the
Game Master 2 + PAC cartridge
version 1.0



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Introduction

Game Master 2 + PAC cartridge is a 2 in 1 cartridge for MSX computer which is compatible with Konami Game Master 2 and Panasoft PAC.

This cartridge has all the functions of the Game Master 2 and the PAC at the same time. Konami software as well as those that use the PAC to make game saves can be used without interfering from one mode to another.

The original Game Master 2 cartridge has 8 KB SRAM and the PAC as well but the location is different. There is also a battery to hold data from SRAM when the computer is off.

Use of the PAC

Games that save data in the PAC must indicate it with the following symbol.



Panasoft has divided this SRAM into 1 kB blocks arbitrarily. When only certain blocks are used, they should be indicated by the following symbol.



(example for a game that uses block 7 and 8)

List of games that use PAC

Cartridge games

Title	Brand	Blocks used
AshGuine - Flame of Vengeance	Panasoft	All
AshGuine - Stronghold Of The Void	Panasoft	All
Crimson	Scap Trust	All
Cosmic Soldier 2 - Psychic War	KGD	All
Famicle Parodic	Bit ²	6
Fire Ball	Humming Bird Soft	All
Hydlide 3 The Space Memories [MSX1]	T&E Soft	All
Hydlide 3 The Space Memories [MSX2]	T&E Soft	All
Inindo - The overthrow of Nobunaga	Koei	All
J.B. Harold's case file #1 - Murder Club	Micro Cabin	1~6
L'Empereur	Koei	All
Maison Ikkoku - Final Chapter	Micro Cabin	All
Nobunaga's Ambition - Nationwide Edition	Koei	All
Penguin-kun Wars 2	ASCII	7
Predator	Pack-in-Video	All
Quinpl	Bit ²	6
Royal Blood	Koei	All
Super Grand Strategy	Micro Cabin	All
The Blue Wolf and The White Stag - Yuan Dynasty Secret History	Koei	All
The Return of Ishtar	Namcot	1
Urusei Yatsura - Love Survival Anniversary	Micro Cabin	1~4
Wizardry - Proving Grounds of the Mad Overlord	Sir-Tech, ASCII	All
Yaksa	Wolfteam	All
Yosuke Ide's Master Mahjong	Pack-in-Video	All

Floppy disk games

Title	Brand	Blocks used
Ashguine II - The Fortress of nothingness	Panasoft	All
Daisenryaku II - Campaign Version	Micro Cabin	All
Fire Hawk - Thexder The Second Contact	Game Art	All
Fray - In Magical Adventure	Micro Cabin	All
Greatest Driver	T&E Soft	All
Hiroku Kubikiri Yakata	Bit ²	7
J.B. Harold's case file #1 - Murder Club	Micro Cabin	1~6
J.B. Harold's case file #2 - Manhattan Requiem	Riverhill Soft Inc.	1~6
J.B. Harold's case file #3 - Kiss of Murderous Intent	Riverhill Soft Inc.	All
Kimagure Orange Road	Micro Cabin	All
Magnar	Parallax	All
Moon Light Saga - Horus Chapter	Maple Yard	All
Psy-O-Blade	T&E Soft	All
Psycho World	Hertz	All
Quinpl	Bit ²	6
Ys II	Falcom	All

Use of Game Master 2

Setup

In order to use the features of Game Master 2, you must first install the original ROM as follows.

First of all, you must obtain the copy of the ROM of your Game Master 2. If you have not already done so, search for a ROM image on the internet or, copy the one of your cartridge in the following way in the inserting into cartridge slot 1.

Turn on your MSX computer with MSX-DOS installed, pressing the spacebar or the Graph key to prevent Game Master 2 from running.

Copy the ROM under MSX-DOS with the command MGSAVE.COM from Tsujikawa, SAVEROM.COM from Bifi or Power Chupin for example. The resulting file should be 128 KB in size. Name this file GM2.ROM for example.

Then turn off your computer and replace the original cartridge with the Game Master 2 + PAC, and turn the computer back on again.

The setup is done under MSX-DOS with the command GM2SETUP.COM as follows.

```
GM2SETUP GM2.ROM /S1
```

/S1 parameter can be placed before the file name.

Game Master 2 Features

① Pause

Press the **STOP** Key. The CAPS LED lights up.

② Frame by frame

Pause with the **STOP** Key. From then on, each time the **mM** is pressed, the following image is displayed.

Note: The **mM** is **;** on a QWERTY keyboard and **⌵** on a Russian keyboard.

③ Slow motion

Pause with the **STOP** Key. Therefore, if you press **ESC**, the idle mode is activated. You can adjust the speed with the **INS** and **DEL** Keys.

④ Change the number of life

Select "MODIFY" from the main menu and then "MODIFY PLAYER NUMBER" from the next menu. After editing, return to the main menu by pressing the **ESC** key and select "GAME" to start the game you inserted into cartridge port 2.

Note that there are games that do not have the concept of number of lives, this function is not usable for such games.

⑤ Stage selection

Select "MODIFY" from the main menu and then "MODIFY STAGE NUMBER" from the next menu. After editing, return to the main menu by pressing the **ESC** key and select "GAME" to start the game you inserted into cartridge slot 2 from the selected stage.

Note that there are games that don't have the stage concept, this function is not usable for such games.

⑥ Screenshot

You can load and save the screen of a game to disk.

To do this, press **STOP** then the **CTRL** key to bring up the load/save to disk menu. Select "DISK SAVE" then "SAVE SCREEN DATA". Then you will be asked for the file name, enter it to make the backup.

Loading is done with the "SELF" option in the main menu. If you select "LOAD SCREEN DATA", the list of screenshot files on the disk will appear, select the file you want to view. When loading is complete, the menu with "DISPLAY ALL SCREEN" et "END" will appear at the bottom of the screen. If you want to see all screens, select "DISPLAY ALL SCREEN". Otherwise, select "END".

Creating a screenshot collection:

Files created by this function can be viewed under BASIC.

However, since the format of the files saved by the Game Master 2 is not the binary MSX format, conversion is necessary with the Game Master 2. To do so, display the desired screen with "SELF" → "LOAD SCREEN DATA" then place the arrow in front of "END" and press **CTRL** + **SHIFT** + **ESPACE**. (It looks like a hidden command. :D)

To view a binary file generated as shown above, you can type one of the BASIC programs below.

For MSX1 games:

```
10 SCREEN 2,2
20 COLOR 1
30 BLOAD "XXXXXXXXX.VRM",S
40 A$=INPUT$(1)
```

For MSX2 games:

```
10 SCREEN 5,2
20 COLOR 15,0,0
30 BLOAD "XXXXXXXXX.VRM",S
40 A$=INPUT$(1)
```

Replace "XXXXXXXXX" with the name of the file you want to display.

As you can see in the program, files named "*.VRM" are binary MSX image files, so they can be viewed with regular software. You will probably just need to rename the extension depending on the software used.

⑦ Save game state to disk

Press the **STOP** key during gameplay to pause, and press the **CTRL** key to enter save and load mode.

To save, you must enter a file name of 1 to 8 characters.

The extension is added automatically. A save can be made outside or during a game.

Same for loading. Make sure the floppy disk has enough free space to back up.

This feature is supported by many games, but not all.

⑧ Save game state to SRAM

Note that you must format the Game Master 2 SRAM before you can use this feature. To do this, select "SELF" from the main menu, then "SRAM DISK UTILITY" and "FORMAT" to format.

This feature is compatible with the following Konami games. The loading/saving method varies by game. Here is the list.

Parodius and Nemesis 3:

Loading and saving to SRAM can only be done while paused by pressing **F1** then the **S** key to save or **L** to load. A message is displayed at the bottom of the screen to indicate the development of the operation.

The filenames used are "GOFE1" and "GOFE2" for Nemesis 3, "PARO" for Parodius.

Metal gear 2 - Solid Snake:

Loading and saving to SRAM can only be done while paused by pressing **F5**. When SRAM is functional the "SRAM" option is added to the menu. It is important to note that during a load, the player returns to the initial location of the zone where the save was made. So grab the nearby items you need before saving. The objects remain acquired.

The filenames used are "SNAK1", "SNAK2" and "SNAK3".

Clash Pennant Race 2:

Only team data and progress can be saved.

Team data can be saved immediately after an edit and progress after a match.

The filenames used are "PENAN" and "PENA2" respectively.

Shalom:

You can only save game progress at eight specific locations.

Loading is done with "CONTINUE" in the title of the game.

The file name used is "SHALM".

King valley 2:

Only edited stage data can be loaded and saved.

The filenames used are "FILE1", "FILE2" and "FILE3".

⑨ Hidden features

This feature makes it possible to find or add the secret features of a game when it is used with another or with the Game Master 2 for example.

Games that support this feature are not many.

To discover secret functions, hold down the **^** key when starting the game. If the function is supported, hidden commands or hints to find them will be displayed.

Some hidden functions can be added by simply inserting the cartridges into slots 1 and 2 at the same time for example.

Note: The **^** key can be **[{**, **@`** or **HX** depending on the type of keyboard.

In addition to these functions, the Game Master offers two games and a small piece of software that is supposed to give your biological rhythm. They are accessed by selecting "SELF" through the main menu.

List of games compatible with the Game Master 2

[illegible]

Title	①	②	③	④	⑤	⑥	⑦	⑧	⑨	Reference
Penguin Adventure	Y	Y	Y	Y	Y	Y	Y	N	N	RC743
Pennant Race	Y	Y	Y	N	N	Y	Y	Y	Y	RC757
Pennant Race 2	N	N	N	N	N	N	N	Y	N	RC766
Pippols	Y	Y	Y	Y	Y	Y	Y	N	N	RC729
Q-Bert	Y	Y	Y	Y	Y	Y	Y	N	N	RC746
Road Fighter	Y	Y	Y	N	Y	Y	Y	N	N	RC730
Salamander	Y	Y	Y	Y	Y	Y	Y	N	N	RC758
Shalom	Y	Y	Y	N	N	Y	Y	Y	N	RC754
Squeek (ANMA)	?	?	?	?	?	?	?	?	?	
Sky Jaguar	Y	Y	Y	Y	Y	Y	Y	N	N	RC721
Space Manbow	N	N	N	Y	Y	N	N	N	N	RC768
Super Cobra	Y	Y	Y	Y	N	Y	Y	N	N	RC705
The Goonies	Y	Y	Y	N	Y	Y	Y	N	N	RC734
The Maze of Galious	Y	Y	Y	N	N	Y	Y	N	N	RC749
The Treasure of Usas	Y	Y	Y	N	Y	Y	Y	N	N	RC753
Time Pilot	Y	Y	Y	Y	N	Y	Y	N	N	RC703
Twin Bee	Y	Y	Y	Y	Y	Y	Y	N	N	RC740
Vampire Killer	Y	Y	Y	Y	Y	Y	Y	N	N	RC744
Yie Ar Kung Fu	Y	Y	Y	N	N	Y	Y	N	N	RC725
Yie Ar Kung Fu 2	Y	Y	Y	Y	Y	Y	Y	N	N	RC737

- ① Pause
- ② Frame by frame
- ③ Slow motion
- ④ Change the number of life
- ⑤ Stage selection
- ⑥ Screenshot
- ⑦ Save game state to disk
- ⑧ Save game state to SRAM
- ⑨ Hidden features

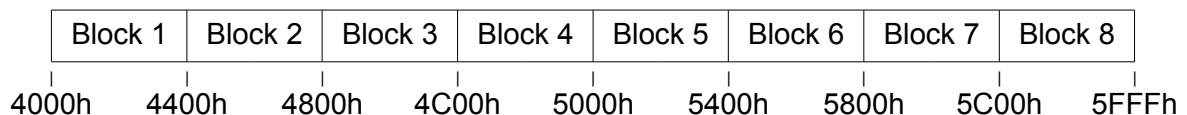
Programming

Operation of the PAC

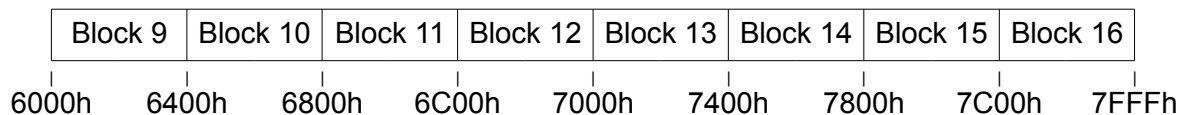
The original PAC SRAM is located between addresses 4000h and 5FFFh. It is disabled by default. To activate it, you must write 4Dh to 5FFEh and 69h to 5FFFh.

The SRAM deactivates by writing another value in one of these two registers. Registers are not visible when SRAM is disabled.

Here is a schematic of the original PAC's SRAM.



This cartridge has twice the SRAM. This additional SRAM is placed as follows:



This additional SRAM can only be used for future games.

Operation of the Game Master 2

The Game Master 2 contains 128 KB ROM and 8 KB SRAM. Here is their description.

The ROM uses a Konami8 Mapper. This divides the 128 KB into 8 KB pages as follows. The SRAM is divided into two 4 KB pages.

Memory page	Page select address	Initial page
4000h~5FFFh	None	0
6000h~7FFFh	6000h (mirror: 6001h~6FFFh)	SRAM Page 0
8000h~9FFFh	8000h (mirror: 8001h~8FFFh)	2
A000h~BFFFh	A000h (mirror: A001h~AFFFh)	3

Page Select Register Format:

Bit 0~3 = Page number to select

Bit 4 = 1 to select SRAM in the range B000h-BFFFh (reflection: A000h-AFFFh only present on original cartridge)

Bit 5 = SRAM page selection (2 x 4K segments are available)

Bit 6~7 = Unused by Game Master 2. Used by Game Master 2 + PAC with bit 5 to have 8 pages of SRAM instead of 2!

Game Master 2 + PAC cartridge specific register

This register is used to install the software in the cartridge. This register is accessible at address 7FFDh. Its format is as follows

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
-	W	EX3		EX2		EX1	

EX1 = Most significant bits of the page number placed from 6000h-7FFFh. (0 by default)

EX2 = Most significant bits of the page number placed from 8000h-9FFFh. (0 by default)

EX3 = Most significant bits of page number placed from A000h-BFFFh. (0 by default)

W = Write mode. (0 by default)

Bit 7 = Unassigned.

Pages 0~15 are for placing the Game Master 2 ROM.

Pages 16~24 are reserved for Game Master 2 SRAM.

Pages 25 and 26 are reserved for the SRAM of the PAC.

All remaining pages can be used to add future functions.

Note that the last 4 pages of Game Master 2 are empty. These can also be used to add additional features.

GM2SETUP can load a file of up to 512 KB into the Game Master 2 + PAC. When the file exceeds 128 KB, a confirmation message will ask you if the pages reserved for the SRAM of the PAC and the Game Master 2 should be overwritten, or not, by the corresponding data of the file. Be careful if this happens so you don't lose your game data.