

SYSTEM 16

Welcome to the System 16 Arcade Emulator v0.79 (DirectX)

- [Legal Notes](#)
- [Credits](#)
- [History](#)
- [Contacts](#)

Sections for new users

- [What is this?](#)
- [System Requirements](#)
- [A Step-by-Step Instruction for first-time-users](#)
- [Read the FAQ \(frequently asked questions\)](#)

Reference

- [Supported Games](#)
- [Learn how the Main Interface works](#)
- [The Game Window](#)
- [The Game Interface](#)
- [All In-Game Controls](#)

This help file © 1998 by Bartman/Abyss, portions by Thierry Lescot

Legal notes

- The System 16 Arcade Emulator is **free** and selling it is **not allowed!**
 - You are not allowed to distribute it **with ROMs** (on a CD for example!)
- SEGA® is a trademark by Sega Enterprises.

Supported games

What is emulated?

- System 16** MC68000
Z80
YM2151 (without the DAC)
Complete graphic hardware
All the inputs (Control Panel, 1P, 2P, Track Ball)
- System 18** MC68000
Complete graphic hardware
All the inputs (Control Panel, 1P, 2P, 3P)
- dual 68000** MC68000 (main & sub)
Z80 + FM YM2151 in Super Hang-On
Complete graphic hardware
3D Ground
Analog controllers

What is missing?

- System 16** The YM2151 DAC (no voices in every game)
- System 18** The two YM3438 sound chips.
Z80 (useless without YM3438 emulation)
- dual 68000** Z80 (except Super Hang-On and Out Run)
Transparent shadows in Out Run
YM2203C in Hang-On (1) and Space Harrier (2)
Motors and force feedback (don't dream :)

What games are supported?

- System 16** Alex Kidd: The Lost Stars
- (pre-version)** Quartet II
- System 16A** Time Scanner
- System 16B** Alien Syndrome
Altered Beast
Aurail
E-Swat (bootleg)
Fantasy Zone
Flash Point (bootleg)
Golden Axe
Heavyweight Champ
Passing Shot (bootleg 2 players-version)
S.D.I.
Shinobi
Tetris (bootleg)
Tough Turf (bootleg)
Wonderboy III (bootleg)
Wrestle War
- System 18** Shadow Dancer (UK and Jp)

Alien Storm
dual 68000 Hang-On
 Super Hang-On
 Space Harrier
 Out Run

Notes for each games

Shinobi No voice, keep only samples
 SHIN_4*.WAV
Altered Beast No voice.
Golden Axe No voice, test mode doesn't work
Time Scanner No voice
Quartet II No voice.
Space Harrier No sound emulation (YM2203), no
 samples.
Hang-On No sound emulation
Shadow Dancer No sound emulation (System 24)
Alien Storm No sound emulation (System 24)
Wrestle War No voice
Out Run No voice
Super Hang-On No voice, no test mode, dipperswitches
 not working.
Tetris Perfect
Alien Syndrome No voice
Wonderboy III Ok
Dynamite Dux Ok
E-Swat No voice
Heavyweight No voice, no controls and some gfx
Champ problems
Major League No controls
S.D.I. Ok (if mouse present)
Tough Turf No voice
Passing Shot No voice, Name letters doesn't
 appear
Moonwalker No sound emulation, some
 priority/scroll problems (ex. text
 doesn't scroll in ending sequence)

Credits

- **Thierry Lescot alias ShinobiZ** for the original coding.
- **Li Jih Hwa alias Nao** (nao@ms6.hinet.net) for the video emulation improvement (zooms, correct colors, system 18, pre-system 16 and dual 68000 games emulation) For the optimization and sound support.
- **Neill Corlett** (corlett@elwha.nrrc.ncsu.edu) for his great 68000 Starscream emulator. Don't miss his emulator MGE (Multi Gauntlet Emulator) located at <http://www4.ncsu.edu/eos/users/n/nscorlet/mge/>
- **Bartman/Abyss** for this DirectX version. Check the System 16 DirectX homepage at <http://abyss.moving-people.net/s16w32.html>
- **Neil Bradley** (neil@synthcom.com) for it's great Z80 emulator, it's fast and very powerfull.
- **Jarek Burczynski** (s0246@goblin.pjwstk.waw.pl) For his great YM2151 sound emulator.
- **Tatsuyuki Satoh** For his great YM2151/2203C sound emulator.

- **Dirk Stevens** for the Eagle graphic library.
- **Ishmair** (ishmair@vnet.es) For the old Z80 emulator i used in prior version.
- **Gerald V. alias COY** (gerald.coy@gate71.be) For the Alien Storm, Wrestle War, Super Hang-On and Moonwalker roms. For providing also a lot of original System 16 board and every things he is doing for me (and us). MERCI GERALD !
- **A.R.F.J.** (j-rom@usa.net) For providing the Tetris roms and DipSwitches informations. Visits his page at http://home.onestop.net/j_rom/
- **DJ Delorie** (dj@delorie.com) For his free C compiler, available at <http://www.delorie.com/djgpp/>
- **Shawn Hargreaves** (shawn@talula.demon.co.uk) For Allegro, the graphic library for DJGPP. This emulator uses the Version 3.0 available at <http://www.talula.demon.co.uk/>
- **Carlos Hasan** (chasan@dcc.uchile.cl) For the Synthetic Audio Library (SEAL) Development Kit.
- **Trevor Song** for the Space Harrier roms
- **Org and Cabbe** for the good Out Run roms
- **Michael Appolo** for the unprotected Alien Syndrome roms.
- **David Delabasse** for the Shadow Dancer board (and the roms) and the boards from Shinobi and Altered Beast.
- **Paolo Venturi** for Wonderboy III, Dynamite Dux, E-Swat and Tough Turf roms.
- **Andrea Turci** for Passing Shot.
- **KEV** for the S.D.I roms.
- And all my beta testers and every System 16 Emulator users.
- Unfortunately, I can't remember who sent me the roms from Shinobi, Golden Axe, Altered Beast, Quartet II, Shadow Dancer (JP), Hang-On. I thank all these peoples too !

History

News since v0.78 (DOS)

- New ROMs supported:
 - Aurail
 - Alex Kidd – The Lost Stars
 - Fantasy Zone
 - Flash Point (bootleg)
 - Major League (not playable)
- Some fixes on older games (Shinobi, Alien Syndrome, ...)
- DirectX port!
- Log YM2151 option.
- Now using the latest version of T.Satoh's YM2151 Emulator
- 16-bit sound output (optional)
- Lots more...
- Windows-Explorer-integration (you can either double-click a .GCS-file), Command-line (e.g. SYSTEM16DX.EXE AURAIL.GCS)

Contacts

The official home page for the System 16 Arcade Emulator is located at <http://users.skynet.be/system16>

The official homepage for the System 16 DirectX port is located at

<http://abyss.moving-people.net/s16w32.html>

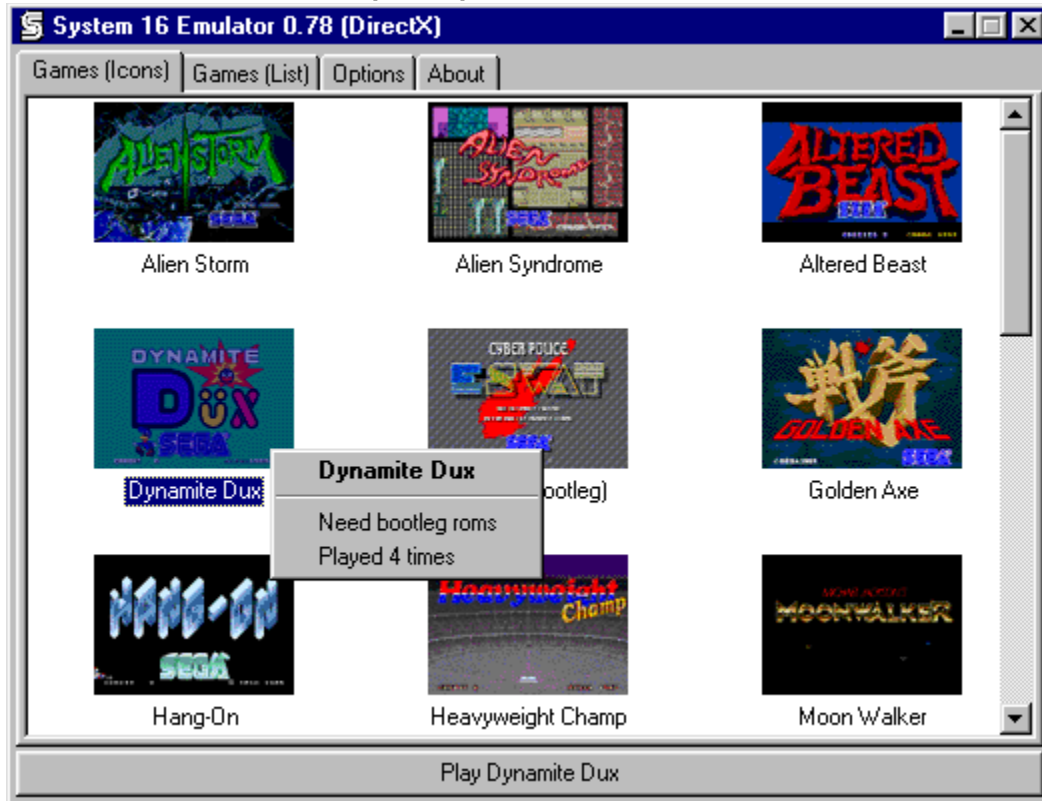
Contacting me (Bartman/Abyss)

- Read the [FAQ](#) first! There will be updated versions on the homepage (see above)
- Don't ask stupid questions (<When will the next version be out?>, <Why does my XXX-joystick not work?>, <Can you send me ROMs>, <When will game XXX be supported?>)
- **Note:** I'm only doing the DirectX-port, if you have questions or suggestions, etc. about the emulator itself, please contact Nao, not me!
- Don't send me any binaries without prior permission
- Use the subject <S16: [your subject...]>

Everyone violating the conditions above is subject to public humiliation and/or mailbombing...

Contact me at bartman@moving-people.net

Main Interface – Games (Icons)



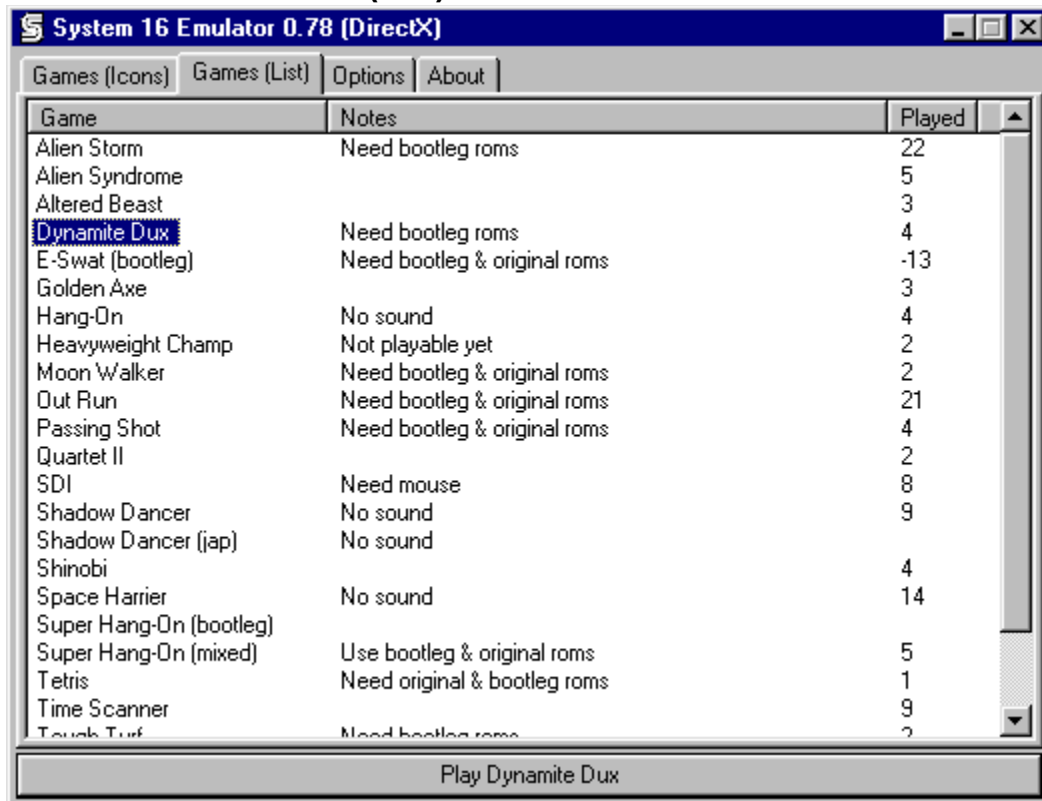
When you click with the right mousebutton over a game, a context-menu like this will pop up and show you further informations about the selected game (How many times did you play it, comments, ...) These are the same informations that you can also view at in the «games list» (without icons)

When you have selected a game from the list above, this button will be enabled. Click on it or double click the selected game in the listview and the Emulator will be launched with the selected game.

This listview contains all emulated games for which .GCS-files have been found in the Emulator's directory. **Note:** To play a game, you need to have the game ROMs downloaded first. Without the appropriate ROMs, you will only get an error message, when you try to play that game!

If you have selected the «Games (Icons)» view, you can right-click on a selected icon to view extended informations. If you are in «Games (List)» mode, the informations about what ROMs you need and how many times you played the game will be displayed in seperate columns.

Main Interface – Games (List)



The screenshot shows the 'Games (List)' window of the System 16 Emulator. The window title is 'System 16 Emulator 0.78 (DirectX)'. It has four tabs: 'Games (Icons)', 'Games (List)', 'Options', and 'About'. The 'Games (List)' tab is active, displaying a table with three columns: 'Game', 'Notes', and 'Played'. The 'Dynamite Dux' game is highlighted in blue. Below the table, there is a button labeled 'Play Dynamite Dux'.

Game	Notes	Played
Alien Storm	Need bootleg roms	22
Alien Syndrome		5
Altered Beast		3
Dynamite Dux	Need bootleg roms	4
E-Swat (bootleg)	Need bootleg & original roms	-13
Golden Axe		3
Hang-On	No sound	4
Heavyweight Champ	Not playable yet	2
Moon Walker	Need bootleg & original roms	2
Out Run	Need bootleg & original roms	21
Passing Shot	Need bootleg & original roms	4
Quartet II		2
SDI	Need mouse	8
Shadow Dancer	No sound	9
Shadow Dancer (jap)	No sound	
Shinobi		4
Space Harrier	No sound	14
Super Hang-On (bootleg)		
Super Hang-On (mixed)	Use bootleg & original roms	5
Tetris	Need original & bootleg roms	1
Time Scanner		9
Tough Turf	Need bootleg roms	2

Play Dynamite Dux

Main Interface – Options



Select the video device in this combo box. If you have a single-monitor/videocard system (with Windows95/NT you probably do) the only entry visible is «Primary display driver». If you have multiple videocards installed, select the one you wish the Emulator to be running on.

Selecting full-screen means that the current video mode will be changed to the one you select in the combo-boxes below. This also means that the Emulator is the only application to display anything on your monitor. Select the desired video resolution in the combo boxes below. The first one (Hor. Resolution) specifies the resolution to be used on games with horizontal displays (nearly all games). The second (Vert. Resolution) specifies the resolution for vertical games (e.g. Time Scanner, Wrestle War, Passing Shot).

Generally speaking, selecting an 8-bit videomode (256 colors) will give you maximum performance, but if there may be some «palette snow» on the screen, you may want to switch to a 16-bit videomode (32768/65536 colors). This will reduce game performance a little bit, but there will be absolutely no palette snow.

Note: If you select a 16-bit videomode, this does NOT mean, that you will see more colors in the game. Everything is still rendered in 256 colors! 16-bit modes are only provided because of the palette snow.

In most cases, the pre-selected resolutions (320x240 8 bit for horizontal games, 400x300 8 bit for vertical games) should be satisfactory, but if your video driver doesn't support those resolutions, you will have to select different ones.

Window-mode is mainly provided for people whose videocards can't do any fullscreen-modes. It is slower than fullscreen mode, but depending on the selected desktop color depth. Don't select window-mode if you're running a 256-color-(8 bit)-desktop. Window-mode works only with 15/16/32-bit desktops. 8 and 24 bits are not supported! In this case, change your desktop resolution or use fullscreen mode!

This is slower because the graphics have to be converted to the selected desktop color depth.

Note: In window-mode, you can resize the window like usual. If your videocard has the ability of hardware-stretching this will be no loss of performance, however if you experience a very noticeable slowdown, you should refrain from resizing the window or switch to fullscreen-mode.

«Eagle is a library intended to improve arcade graphics in a generic way» Enabling Eagle will require at least double resolution as usual (640x480 min. for horizontal games, 1024x768 min. for vertical games). It does improve the graphic quality, but does also slow down the game speed if you don't have a very very fast computer (just try it). Eagle only works with 8bit videomodes!

This option may prevent palette snow effects. This can take up some cpu-time (only when new colors are needed)

Note: This option is completely different from the DOS-version. The DOS-option «-vsync» is always enabled in DirectX-fullscreen and – contrary to the DOS-version – does not take up any cpu-time (if your videocard supports it)

With this option checked, the window's initial size will be doubled.

This option may prevent tearing effects, but slows down the game speed. Use this if you think the game runs too fast

Only every n.th frame is calculated.

Tip: Enable this option if your computer is too slow to render every frame (you will notice this, if the game is too slow).

Usually, when you press F1 (or the designated key) to pop up the in-game interface, the window will be displayed using the currently selected fullscreen-videomode. However, if your system doesn't like that or if you think the window doesn't look good at all, esp. at low resolutions, you can enable this option. Then, everytime you enable the in-game interface, the original windows desktop resolution will be restored, and after you close the interface, the selected full-screen resolution will be restored.

With this button you can register the file-extension .GCS (from the System 16 Emulator) with your Windows-Explorer. That means: You can then doubleclick on a .GCS-file from within the Windows-Explorer, File Manager or Windows Commander, etc. and then the System 16 Emulator will be automatically launched with the game you have doubleclicked.

Use this to remove the file-associations that have been set with the 'Register (Shell)'-Button.

You can select the output resolution of the sounds. 8bit or 16bit. Usually, selecting 16bits should not result in much slowdown, but can increase the output quality.

Seems you already found out what this button's about 8-)
It will display the helpfile you're currently reading...

Select the audio device you want to use for sound output. There should be at least 3 selections, if you have a sound card installed. The sound system always uses Direct Sound. So be sure to select a direct sound certified driver (not an emulated one) to get the best performance and quality.

- **Silence (no sound):** Sound disabled (d'oh!)
- **Primary audio device:** This selects the default audio device.
- **(Name of your soundcard driver):** Directly selects a specific sound card, use this if you have more than 1 soundcards installed and want sound output on a specific one.

The Sample rate will control the quality of the sound:

- **11025 Hz:** Low quality, low cpu-usage
- **22050 Hz:** Standard quality, standard cpu-usage
- **44100 Hz:** Maximum quality, very high cpu-usage

Select the type of YM2151 Emulator:

- New YM2151 Emulator by Tatsuyuki Satoh: Faster
- Old YM2151 Emulator by Jarek Burczynski

In these edit boxes you can change the paths where the various files needed/saved by the Emulator. Usually, you don't need to change the paths.

Note: You can either enter absolute paths (e.g. C:\Games\Emulators\System16\Roms) or relative paths (Roms\); those will automatically (internally) be expanded, so if you, for example, have the System 16 Emulator installed in C:\S16, and you entered ROMS\ as a relative path, it will be expanded to C:\S16\ROMS\

Specify the number of 68000 instructions to execute between two screens refresh. The default value is 15000 but if the game is too slow you can try lower values or higher values.

Specify the number of interrupts to generate each second. The default value is 60. Higher value speedup the game but in this case some problems can occur.

Resets the two above options to their defaults

Enable this option if you have a PentiumPro(r)-CPU. It may improve performance. Disable this option (default) if you don't have a PentiumPro(r)-CPU. It may lower performance!

The Keyboard Tester



How does it work?

Just press some keys on your keyboard, and you will see it in the window. Hit the close button to dismiss the window.

What good is it?

Have you ever experienced when you played some emulators with the keyboard, that when you press some more keys simultaneously, some don't work. Just an example is Super Mario Bros.: You press down one key to run, then an arrow key for the direction, and now you want to jump. On my \$90 keyboard, this doesn't work unless I find some keys that work together.

And to find out which keys can be pressed simultaneously on your keyboard, you can use the Keyboard tester. You will be surprised when you discover what big differences there can be on various keyboards.

This is of course the window where all the action is. Nothing more to say.

These 3 lamps represent the 3 keyboard LEDs from the DOS version in the same order (Numlock, Capslock, Scrolllock). A grey icon means LED is off, green icon means LED is on.

The current frame rate (fps = frames per second) will be displayed here. Please note that this value may be inaccurate directly after starting a game and upon returning from the interface or from other applications. This value will most probably vary from game to game and even during the game (depending on e.g. how many sprites are being displayed, etc.)

This is the status pane, where you can find informations like the version number, pause status, and other information messages when you save a screenshot etc.

Drag this corner to resize the window (d'oh!) If the game performance drops significantly, then your video card cannot handle System RAM -> Video RAM blits by hardware, so you better drag the window to its smallest possible size (that is exactly the original size of the game).

Known videocards supporting hardware blits: Diamond Viper V330 (and probably all other RIVA128-based cards like STB Velocity 128, Elsa Erazor, ...)

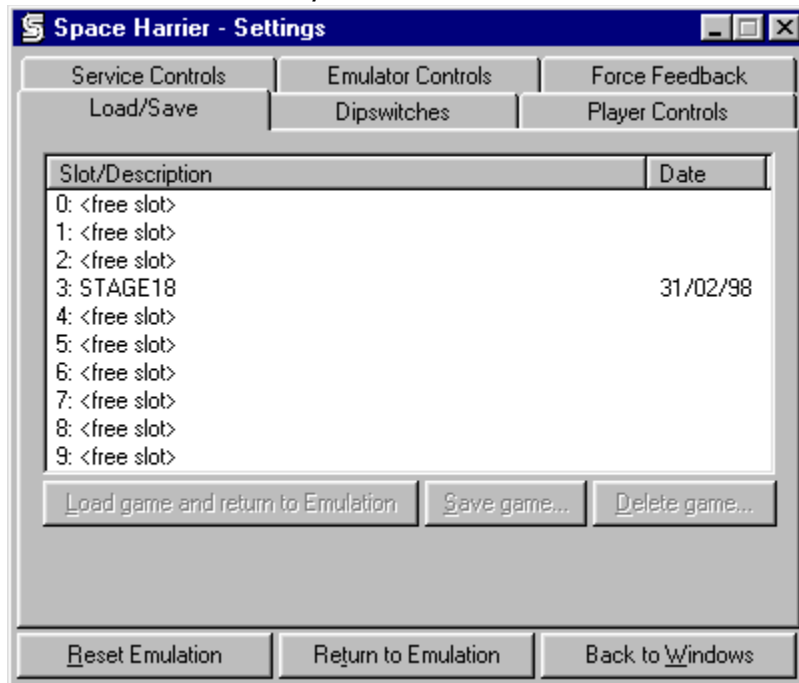
Known videocards NOT supporting hardware blits: Diamond Stealth 64 VRAM (and probably all other S3-based cards), Matrox Mystique.

Please let me know whether your card supports hardware blits or not, just drop me a mail!

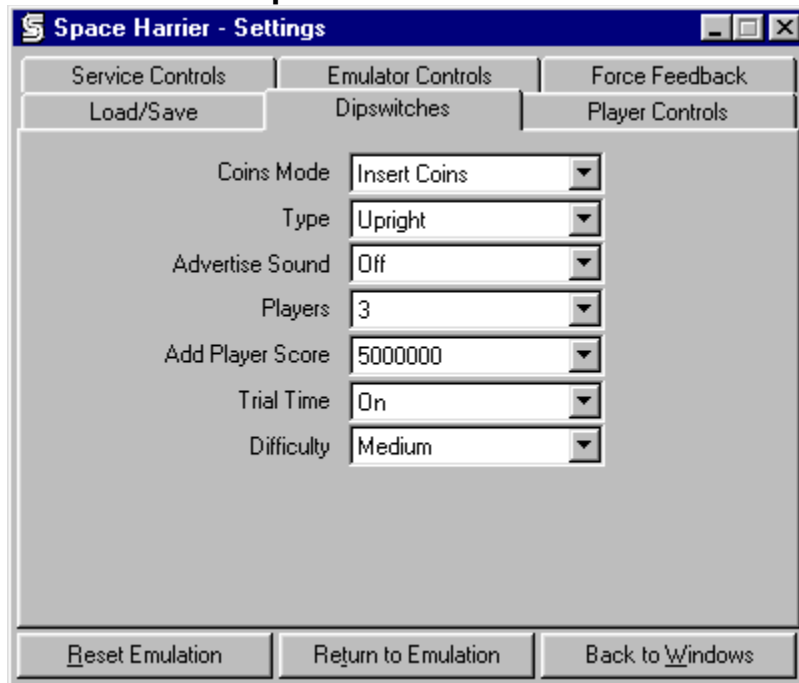
The Game Window



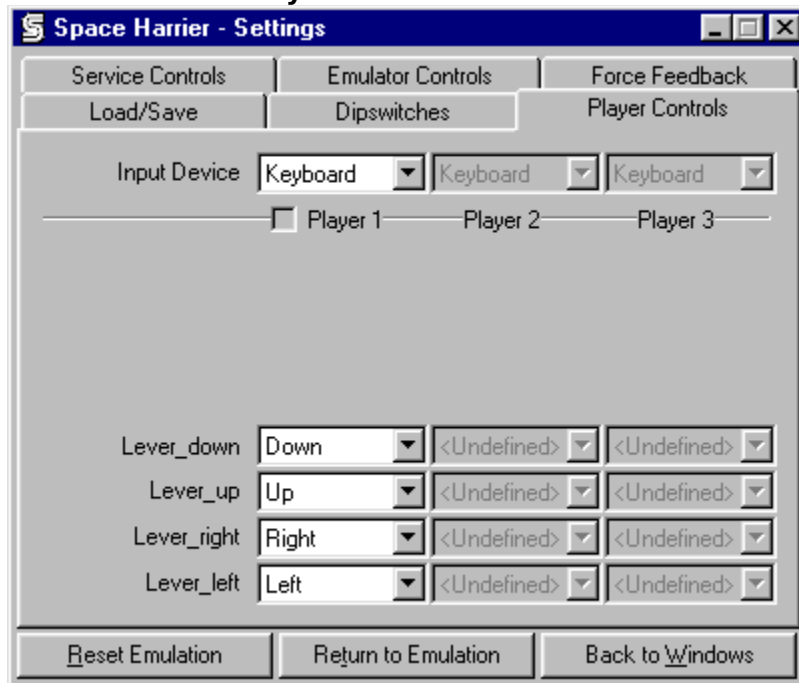
The Interface – Load/Save



The Interface – Dip Switches



The Interface – Player Controls



The Interface – Service Controls

The screenshot shows the 'Space Harrier - Settings' dialog box with the 'Service Controls' tab selected. The dialog has a title bar with a blue background and a yellow icon. Below the title bar are three tabs: 'Load/Save', 'Dipswitches', and 'Player Controls'. The 'Service Controls' tab is active, showing a grid of settings. At the top, there are two dropdown menus for 'Input Device', currently set to 'Keyboard' and 'Gravis Gamej'. Below this is a horizontal line. The main area contains a list of settings, each with a label and two dropdown menus. At the bottom, there are three buttons: 'Reset Emulation', 'Return to Emulation', and 'Back to Windows'.

Label	Value 1	Value 2
Input Device	Keyboard	Gravis Gamej
Coin_1	3	Button 3
Coin_2	4	<Undefined>
Test	0	<Undefined>
Service	8	<Undefined>
Start	1	Button 4
Shoot_1	L-Control	Button 1
Shoot_2	L-Alt	<Undefined>
Shoot_3	Space	<Undefined>

Buttons at the bottom: [Reset Emulation](#), [Return to Emulation](#), [Back to Windows](#)

The Interface – Emulator Controls

The screenshot shows the 'Space Harrier - Settings' dialog box with the 'Emulator Controls' tab selected. The dialog has a title bar with a blue background and a yellow icon. Below the title bar are three tabs: 'Load/Save', 'Dipswitches', and 'Player Controls'. The 'Emulator Controls' tab is active, showing a list of settings with dropdown menus and explanatory text. At the bottom, there are three buttons: 'Reset Emulation', 'Return to Emulation', and 'Back to Windows'.

Setting	Value	Description
Interface	F1	'F1' always shows interface!
Exit	End	'Esc', 'Alt+F4' always exit!
Pause on/off	P	
Save Screenshot	S	
Background on/off	F11	
Framerate on/off	Tab	Fullscreen only
Log YM2151 on/off	Y	WAVE will be saved to PCX dir
Quickload	F7	
Quicksave	F5	

Buttons at the bottom: [Reset Emulation](#), [Return to Emulation](#), [Back to Windows](#)

This list shows all savegames for the currently running game. A maximum of 10 savegames can be used for each game. You can see the description of the savegame and the date of creation. Now you can see what your last savegame was, even if you messed up the description.

First select a savegame in the list above and then click on this button to load the savegame. The emulator will automatically continue game execution. Note that your savegames are completely compatible with the DOS version of the System 16 Arcade Emulator.

First select a slot in the list above (can be either free or already used) and click to make a snapshot of the current game-progress. You can also enter a description. You can then shut down the emulator and continue playing whenever you want by loading your previously saved game-state (see Load-button)

First select a used slot above and you can delete the savegame from your harddrive. A confirmation dialog will first pop up to prevent accidental deletion of savegames.

The emulation will be reset – meaning the game will be restarted. You will automatically be brought back to emulation where action immediately continues.

Close the interface window and continue with game execution.

Clicking this button will shut down the emulator and bring you back to Windows. This is equal to pressing Alt+F4 during a game or pressing the user-defined quit key (default: END/ESC)

In this dialog you can modify the dip-switches of the current game. The dip-switches will vary from game to game. Some of them will only take effect, when you restart the game (reset button on the first tab).

With these combo-boxes, you can select the input device used for each player. The combo-boxes will always list «Keyboard». If you have joysticks/gamepads etc. installed in the Windows Control Panel, you will find them listed here.

Note: Only the number of players supported by the current game of columns for player-settings will be enabled!

Note: If you don't find your joystick listed in the combo-boxes, check if:

- The joystick is installed via the Windows Control Panel «Joysticks»
- The joystick is connected.

Note: Multiple joysticks are supported, although I have never tested this, but you can use up to 16 joysticks like in the Windows Control Panel.

Note: You can even select the same input device for multiple players, although it makes no sense (to me) 8-)

This checkmark will only be enabled if you chose a joystick as input device for player 1. It means the game should treat the joystick as an analogue joystick. This is only supported by a number of games (AFAIK Hang-on, Super Hang-on)

Note: if you experience that your joystick behaves kinda «wobbling» with games that don't support analogue input devices, you should consider de-activating this checkbox!

Select the keys/joystick directions/buttons for each player. Just open the combo-boxes and select an entry.

- **Keyboard:** You can use virtually all keys, but left and right qualifiers are not the same, e.g. if you select «L-Ctrl» you cannot press the right control key for this action.
- **Joystick:** Only the number of buttons is being displayed, that the currently selected joystick supports.

Note: If you don't want a specific action to be mapped, select <Undefined> and it will be ignored.

Note: It's not possible to use both keyboard and joystick for one player.

Tip: If you don't know which keys can be pressed simultaneously on your keyboard, use the [keyboard tester](#) from the main interface.

You can use two input devices to control the service buttons: The first column is always the keyboard, in the second column you can select any connected joystick. If no joysticks are available, that column will be disabled!

Select the keys you want to assign to the emulator controls. Note that some functions (Interface, End) always have default keys assigned to (Interface: F1, End: Esc/Alt+F4), so you can't forget your alternate keys!

All In-Game Controls

default key	description
F1	show in-game interface. F1 will always bring up the interface, regardless what other key you assign to it.
End	Exit to Windows. Esc and Alt+F4 will always work.
P	Pause on/off: Toggle pause mode (screen will be dimmed). Note, that the emulator will automatically enter pause mode, when the window has been deactivated (window-mode only) or you switch to another application (e.g. with Alt+Tab)
S	Save screenshot: Saves a PCX-snapshot of the visible emulator-screen in your PCX-directory (unless changed in the options-dialog). The snapshots will be numerated like (gamename01.pcx, gamename02.pcx, ...)
F11	Background on/off: Toggle the background on/off
Tab	Framerate on/off: Toggles the display of the current framerate (fps, frames per second) in full-screen mode.
Y	Log YM2151 on/off: Pressing this key will start logging the current sound to a WAVE-file in your PCX directory. Numerating works the same way as for the screenshots. Pressing this key again will stop writing to the WAVE-file.
F7	Quickload: Loads a savegame saved with the Quicksave-function.
1	Start button (Player 1)
2	Start button (Player 2)
3	Insert coin (Player 1)
4	Insert coin (Player 2)
8/9	Service mode
0	Test mode

The FAQ

How do I play games? I always get error messages? What are ROMs?

Please read the [Step-by-Step Guide for First-Time Users!](#)

Especially in Out Run, the music is too loud and sometimes gets distorted!

Out Run uses a higher sound output level than the other games, the only way to get rid of it (for now) is to turn down the volume of your soundcard (the speaker icon in the system tray area)

I don't get no sound at all!

Be sure to select a valid sound card driver in the <Audio Device> Combo-box in the [Options dialog](#). You should select <Primary audio device> or your sound card driver directly. Make sure that no other application is opened that is using your sound card (especially DOS-boxes!). Make sure the volume of your sound card (speaker icon in the system tray area) is turned up, also verify that your speakers are connected and turned on. If you still don't get any sound, have a look at the remarks in the [games list](#), If it says <No sound> then you won't get any sound!

I have a super-duper soundcard but in Alien Storm, ... there is no sound!

Some games don't have sound emulated. Look in the games listing, and when it says <No sound> then you don't get no sound!!

The sound sometimes is choppy or too slow

Make sure you have selected a DirectSound certified sound driver in the <Audio Device> Combo-box in the [Options dialog](#). Certified drivers should not have <(Emulated)> in their description. If this doesn't help, you may try to increase the Frameskip value in the [Options dialog](#), I have noticed that sound begins to sound choppy and/or slow (esp. in Out Run), when the framerate drops below 10-15 frames per second. This simply means, that your machine is too slow to handle all the graphics *and* sound! You can also try to lower the sound frequency (e.g. instead of 22kHz select 11kHz), lowering the sound resolution from 16 to 8 bits shouldn't improve performance, but you can

try it anyway...

The game <xxx> runs, but it doesn't react on my key commands (e.g. doesn't start when I press <1>)

Although System 16 tries to use your old System16.ini from the DOS-version, the new games (since v0.78 DOS) have no default-keys, so you have to go to the in-game interface (press F1), and define the controls by yourself. The control settings will of course be saved, so they will be used everytime you run that specific game.

Why does the emulator exit to Windows when I want to return to the main GUI?

There is no way to return to the main GUI (Interface). Once you have selected a game, you can only exit to Windows and restart the Emulator. Sorry, this is due the conceptual design of the original DOS version!

Everybody's talking about FPS? What is this and how can I use it?

FPS is the abbreviation for Frames Per Second. It specified the number of pictures that are rendered in 1 second. The original arcade machines mostly run at 60 frames per second. You can press <Tab> in full-screen mode to enable the FPS display. In window-mode the FPS rate is shown in the status bar at the bottom of the window. After 1-2 seconds you can read the current rate. If your machine achieves 60 or more FPS, this means that your computer runs the game as smooth as the original arcade. If it's below 60, you should consider setting a lower sound frequency or disable sound at all. Sound is very time-consuming! So you can use the FPS display to check out how fast your machine is!

In Full-screen mode, when I press F1, the interface doesn't show up or is distorted or just partially visible

Seems your video driver doesn't like dialogs in DirectX-modes, so try checking the <Restore windows desktop resolution for Interface>-Option in the Options dialog!

The window-mode doesn't work! It gives me an error message!

You can only use the window-mode if your desktop color depth is set to 15 bits Highcolor (32768 colors), 16 bits Highcolor (65536 colors) or 32 bits Truecolor (16.7M colors). It does **not** work with 8 bits (256 colors) or 24 bits Truecolor (16.7M colors).

You told something about <not affecting performance when you resize the window> in window-mode. However on my super-duper \$999,95 Matrox video card the framerate immediately drops down to ~5 fps when I resize the window only by a single pixel!

The performance-lossless resizing of the window is only possible, if your video card (driver) supports it. As far as I know, only Riva128-based video cards (Diamond Viper V330, Elsa Victory Erazor, Asus 3d*****, ...) and GLint-based video cards (Diamond Fire GL) are capable of doing this. If you want to play the games very big, you should consider using full-screen mode!

Okay, I'm sure that my card supports this feature, but it seems you are to stupid to use it!

No! If you're absolutely sure that your card supports it (although I don't know from which source you'd know that...), if you have a multi-monitor system, you **MUST** select a display device in the Options-dialog other than <Primary display driver>. It should work then! This is a limitation by Windows, not the System 16 Arcade Emulator.

When I select 2x window mode, the game is very slow!

Read above. Don't use it!

In S.D.I. I can move my <satellite> with keyboard or joystick, but how do I control the aiming cross and shoot?

Use your mouse!

In Fantasy Zone, when it's Player 2's turn, all the sprites and the scrolling is corrupt!

During the game, hit <F1> to show the in-game interface, select the <Dipswitches>-Tab and set Type to <Upright>, not <Coctail Table>.

In Heavyweight Champ and Major League, the controls don't work!

These games aren't playable with the current version. Stay tuned for updated .GCS files and/or newer Emulator.

On my Windows NT, when I start a game it gives my some strange error message.

You need DirectX 5 for WndowsNT for the DirectInput-core!

There doesn't seem to be any specific place where DX5 is available for NT4, however one page that maintains Windows NT news has it. The link to his site is <http://www.stefan98.com/winnt/news/>. Look for <NT 4.0 DirectX 5.0 Libraries> dated February 12, 1998. It's right near the top of the page. I already have feedback of several people that confirmed the DirectX5 for NT is working great!

What's the matter with the <Force-Feedback> support? There is a tab in the in-game interface that says <Force-Feedback> on it!

I didn't manage to implement the force-feedback support up to the release of this version! Expect the Emulator to support force-feedback for Out Run in the next version!

All of your logos spell <SECA> instead of <SEGA>!

We don't want to get into any kind of trademark infringement suit, so I slightly modified the logo. If you don't like it, don't look at it!

Your DirectX port sucks!

Go use the DOS-version, dumbhead!

What is this?

This program emulates the Sega's System 16 arcade boards used by many Sega arcade game between 1987 and 1989 like Shinobi, Altered Beast and E-Swat. There are more than 20 existing System 16 games. The System 16 board uses a Motorola 68000 for the main program, a Z80 and plus the couple YM2151/YM3012 for the sound. The current version of the emulator emulates many more than the single System 16 board because now you can play with System 18 games like Shadow Dancer, with pre-System 16 games like Quartet II and even with some dual 68000 games like Hang-On, Space Harrier and Out Run !!

This program is an hardware emulator and it needs the original games roms to run, these roms are still copyrighted by Sega Enterprise! **Please, don't e-mail me to get roms, I'll ignore your requests!**

System Requirements

You need at least the following to run the Emulator:

- Windows 95, 98 or NT 4.0
- DirectX 5 (Yes, even for WinNT. Check [here](#) for more infos!)
- DirectDraw compliant video-card that either runs fullscreen-modes or a Windows desktop set to 15-, 16- or 32-bit color depth.

This is recommended for smooth gameplay:

- a decent Videocard (e.g. Riva128-based)
- a DirectSound-compliant Sound card (e.g. SB16/32/64, GUS PnP)
- Pentium 200 MHz if you disable sound
- PentiumIII 300 MHz if you enable sound

Hey, these are only subjective recommendations, try whatever you like, but don't complain it's too slow... However there are some tricks to improve gameplay even on slow computers...

Step-by-step guide for first-time-users

1. Installing the System 16 Arcade-Emulator

You have probably done this already, however: Unzip the System 16 Zip-Archive into a directory of your choice (we will use D:\Emulator\System16, but you can use whatever you like). After doing so, you should have at least System16dx.exe, System16dx.hlp, System16.ini, 28 .gcs-files, and subdirectories Datas\, Pcx\, Roms\, Samples\, Saves\, Ziproms\, Zipsampl\.

Note for users of the previous MS-DOS version: You may want to keep your old System16.ini file to retain your keyboard settings. System 16 DirectX is able to convert your settings, and you can then run both the DirectX and the MS-DOS version with the same System16.ini-file. However note, that the keyboard settings have to be changed in both versions to effect eachother. However, be sure to overwrite all existing .gcs-files, as some of them have been changed to fix some bugs!

2. Downloading ROMs

Please, don't e-mail me to get roms, I'll ignore your requests! You can get all the ROMs supported by this emulator at those websites:

- <http://www.davesclassics.com>
- <http://www.emuviews.com>

You have to look for the ROMs that say <System 16>. For a complete list, click here. After you have downloaded some (e.g. alexkidd.zip), you can either put them in the Ziproms\ sub-directory of your System 16-Emulator or unzip them into the Roms\Alexkidd\ directory. Unpacking the ROMs gives you shorter delays while loading the ROMs from the Emulator, however the zip-files take up less space on your harddrive, so it's your decision.

Copyright notice: The game ROMs are copyrighted by Sega Enterprises, you may only download and play them if you own the original arcade board of the specific games!

3. Running and configuring the Emulator

Now you can run the System 16 Emulator by executing the file <System16dx.exe> or clicking on its icon. You should then see the About-dialog with the System 16-logo. If you see an error dialog looking like <Could not find: DINPUT.DLL>, you probably need to update to DirectX 5.0. Check the [FAQ](#) on this!

Assuming you are now seeing the About-dialog, click on the <Options>-tab. The most important options for the first time are the video device box (upper left corner), the selection whether you want full-screen- or windowed-mode and the audio settings (upper right corner). For a detailed description please check [this page](#)!

Now you can click the <Games (icons)> or <Games (list)> tab to see a list of all supported games.

Note: Although you see a list of all supported games, it does not necessarily mean that you can play all these games. You will have to download each of them seperately and install them as described in §2.

Now simply double-click on the game you want to play (in our example, Alex Kidd).

After the <ROM loading...>-dialog – depending whether you selected windowed- or full-screen-mode – you should see either the [game window](#) or Windows should switch display resolution to the selected full-screen mode (the default values should suit everyone)

4. Playing the game

You should now see the title screen of your game (e.g. Alex Kidd). Now it's time to insert some coins into the arcade 8-) This can be done by pressing <3> (for Player 1) or <4> (for Player 2).

Note: Should pressing <3> or <4> not increase the <Credits> display, you will have to set the controls manually. To do this, hit <F1> to show up the [in-game interface](#) and set up the controls. Click on the <Service Controls>-Tab and assign keys to the functions. You can see the default values [here](#)!

Okay, now your credits counter should have increased, and you can press <1> (for Player 1) or <2> (for Player 2) to start the game. You can then control the player with the cursor (arrow) keys, jump with the <Ctrl>-key and shoot (if collected) with the <Alt>-key. Note that each game may have a different key layout.

5. Using joystick(s)/gamepad(s)

You can also use your joystick or gamepad to play the games, if you like. To do so, enter the [in-game interface](#)

during the game, go to <Player Controls> and select your joystick in the input-device combo-box. Now the directions should already be defined, but you will have to assign the buttons. You can then close the interface and should be able to play with your joystick!

