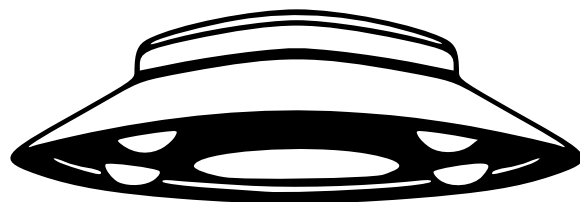


RCA *Studio II*



THE
INVASION

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Photosensitive Epilepsy (PSE) Warning

This game generates bright, flickering graphics. DO NOT USE if you are susceptible to photosensitive epilepsy, a sensitivity to flashing lights or visual patterns that might trigger seizures and other symptoms.

Image Burn Warning

Displaying a stationary image for an extended period can cause image burn or image retention on any TV. Refer to the owner's manual of your TV for specific information and precautions.

Revision History

Initial version V1.00, produced January 1, 2019.

1 Author's Notes

This is a tribute to Taito's Space Invaders, an arcade classic that celebrated its 40th anniversary in 2018. Consider this one a demo program. It's playable, but due to various constraints not a great game. Code is a hybrid of interpreted code and machine language using the built-in graphics system and eight sprites: four enemies, two scores, a player, and a missile.

Experimental color support is included for the Studio III and its clones, you can try it in Emma 02 using the Victory MPT-02 ROM. The color overlays used on some Space Invaders machines are crudely simulated (see Figure 1). The method for using color is taken from the Programming Manual for Studio III, contributed by P. K. Baltzer and A. A. Modla.

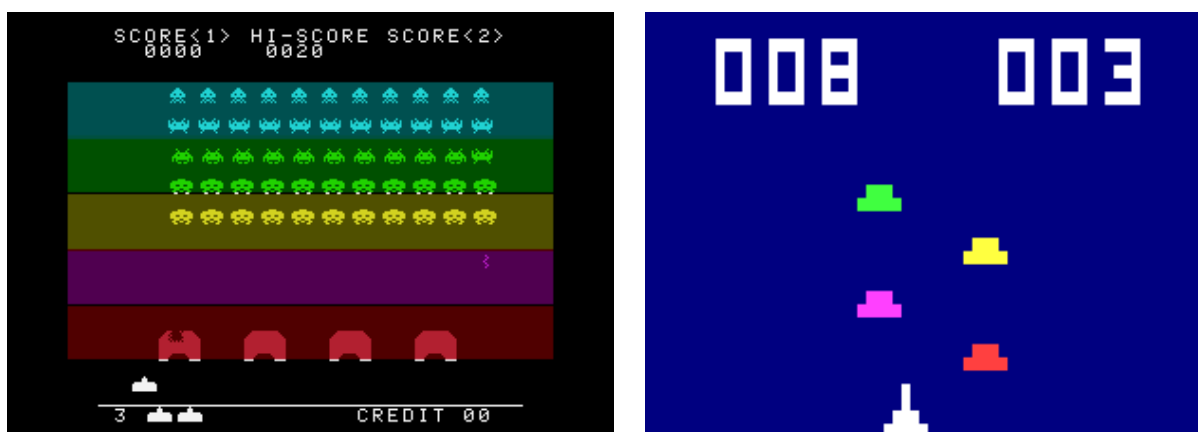


Figure 1: Space Invaders DX (left), The Invasion (right).

Title graphics were inspired by "The Invaders" TV series, the prompt uses the 4x4 font by jambox_josh. This PDF was made with ProTeXt 2013 and the OCR-A font by Matthew Skala.

If you like it, consider making a donation to show your support and encourage future projects. Donations are voluntary, a tip for the programmer. If you can't make online payments, or don't want to, that's OK. THANK YOU!

Dedicated to Tomohiro Nishikado, the creator of Space Invaders, and everybody at Taito who worked on it.

2 Running ST2 Files

The game program is distributed as an "ST2" file, which is a cartridge format defined by Paul Robson for use with Studio II emulators. It includes the binary game code plus a descriptive header. The Invasion was written and tested with the Emma 02 emulator V1.28 written by Marcel van Tongeren.

Emma 02 is available here: <http://www.emma02.hobby-site.com>

After starting up Emma 02, click on the Studio II tab. Load the game by clicking the "CART" button. Navigate to the location of the "invsn.st2" file, select it, and click "Open". Click the "Start/Reset" button at the bottom right of the window or press F12 to start the game (see Figure 2). You might have to give the game window focus before it will respond to the keyboard.

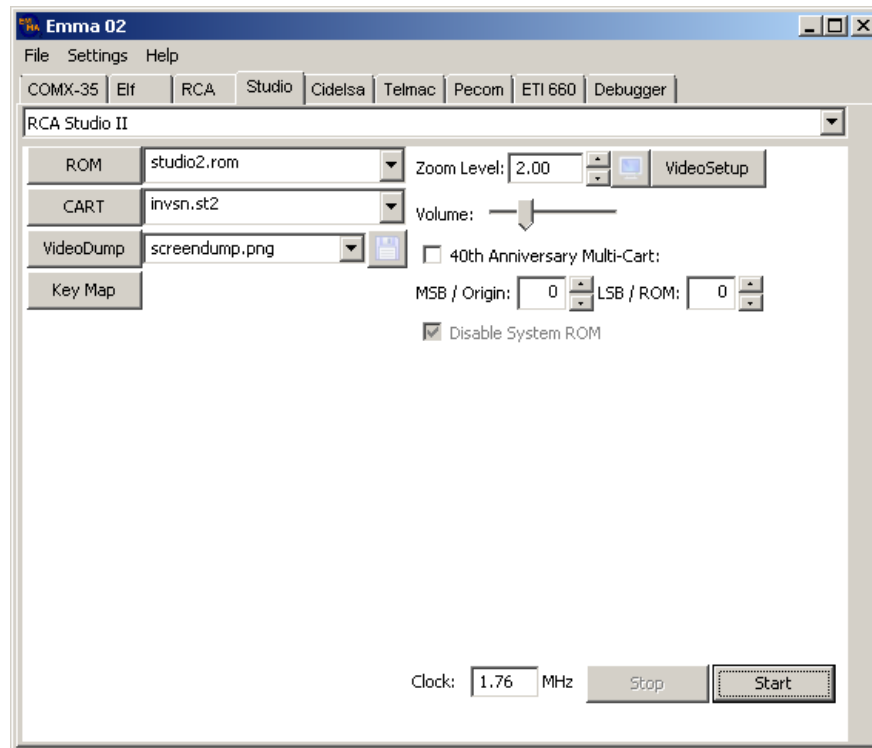
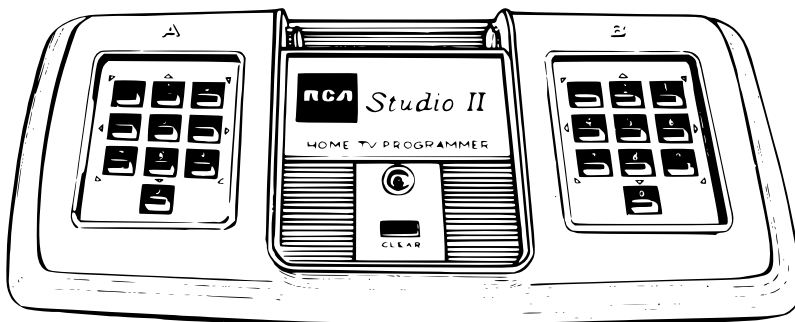


Figure 2: Emma 02 screenshot, Studio II tab.

The game instructions refer to numbered keys as if you are using an actual Studio II console. Keyboard A is on the left side of the console, keyboard B on the right. When using Emma 02, the emulator maps the Studio II keys to your PC keyboard.

The author recommends the key layout shown in Figure 3. More information about configuring the keyboard is available in the emulator's help file.



Studio II				Emma 02					
Keyboard A/B				Keyboard A			Keyboard B		
1	2	3		1	2	3	7	8	9
4	5	6		Q	W	E	4	5	6
7	8	9		A	S	D	1	2	3
	0				X			0	
				(NumPad)					

Figure 3: Recommended Emma 02 PC keyboard setup.

3 The Invasion

Mars had been watching the planet Earth for centuries, and saw it slowly destroyed by its own inhabitants. The few surviving Humans fled into space, determined to occupy the Solar System's last habitable planet. With an invasion imminent, the Martians built a powerful weapon to defend the red planet, vowing the invaders would never reach the surface.

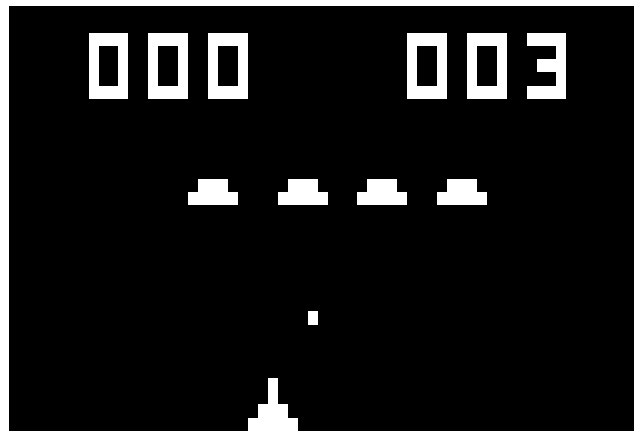


Figure 4: The Invasion, wave 1.

3.1 Getting Started

Following reset a title screen is shown until you press a key from 1-6 on keyboard A to select a game (see Table 1). The object is to destroy the incoming UFO formations with your laser cannon. There are eight unique waves to deal with.

3.2 Controls

The game uses keyboard A only. Keys "2" and "6" move the laser cannon left or right along the bottom of the screen. Press "5" to fire the laser cannon. You can't fire again unless you hit a UFO or the missile travels off the screen (see Section 3.4). Press the console's reset button for a new game.

3.3 Scoring and Lives

Your score is shown by the left numeric display. Each UFO hit with a missile increases the score by one point. The highest score that can be displayed is 255 - the next point after this causes a rollover to zero.

You don't score if your laser cannon crashes into a UFO, but you do lose a life. The number of lives you have is shown by the right numeric display. You begin with three lives, so you can only afford to be hit twice. If you are hit a third time you are permanently eliminated and the game is over.

3.4 Game Variations

Choosing a game is done on the title screen by pressing a digit from 1-6 on keyboard A. Difficulty increases every eighth wave with an increasingly slow response to player movement controls. Beginners have the option of starting with a relatively quick response time for their first eight waves.

Only one missile can be in play at a time. In regular games it will explode on contact with an enemy, and you can fire again immediately. Indestructible missiles must travel off the screen before you can fire again. While you can hit several enemies with one shot, missing a nearby target can be fatal.

	1	2	3	4	5	6
Easy, Quick Response	X			X		
Normal Response		X			X	
Hard, Slow Response			X			X
Indestructible Missiles				X	X	X

Table 1: Game select matrix.