

SOKOBAN: THE PUZZLE GAME

Welcome

Welcome to Sokoban! Sokoban is a Japanese puzzle game that was first released in 1982. In this game, the player shoves boxes around until it reaches a target location. This game will mimic the core game-play but will use a set of LEDs to represent the board and a D-pad for movements. This version of the game is rated for ages 10+ and can be played with any number of players with each taking approximately 30 seconds per round. Let's get ready to play.

Setup

1. Open the Ripes Program

Find the location where the Ripes application is held and run the program. Figure 1 should be the starting screen.

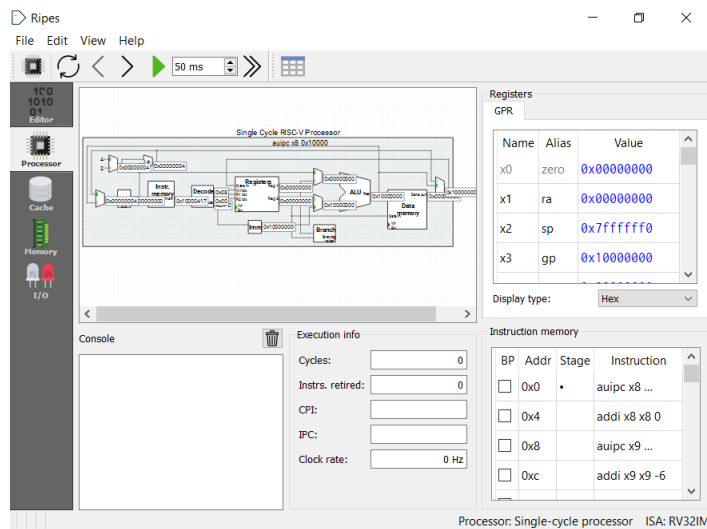


Figure 1

2. Load the game file

To load the game file, click the "File" tab and then "Load Program" (Figure 2). Then, click on the "Source file" option and click "Open" (Figure 3). Next, locate the game file and click "Ok" (Figure 4). Finally, select the "I/O" tab from the left side (Figure 5) so we can start setting up the game.

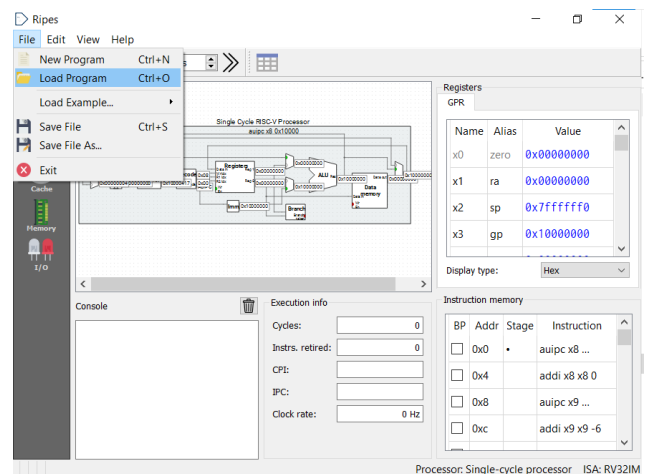


Figure 2

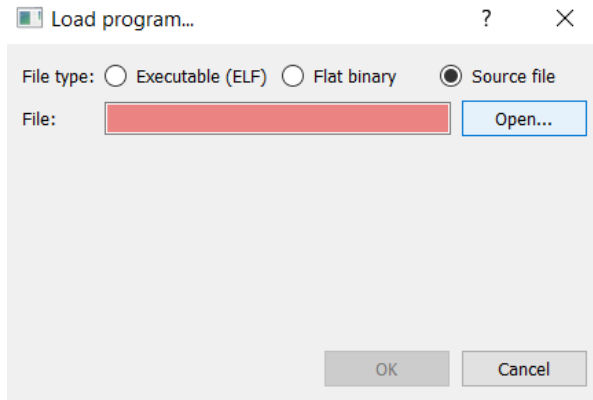


Figure 3

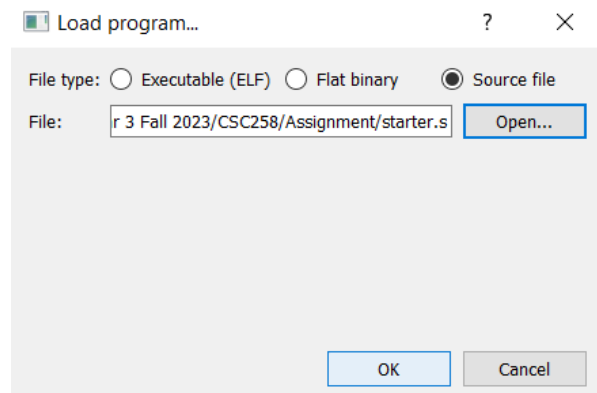


Figure 4



Figure 5

3. Setup the LED matrix

Underneath devices, double-click on the “LED Matrix” device to get an LED matrix if one does not exist. A panel on the right will appear called “LED Matrix 0”. This subsection will have parameters “Height”, “Width, and “Size”. Double-click on the cell next to height and width and set their values to 8. Increase the value next to the “Size” cell until the LED Matrix is at a comfortable size. Figure 6 shows a possible example.

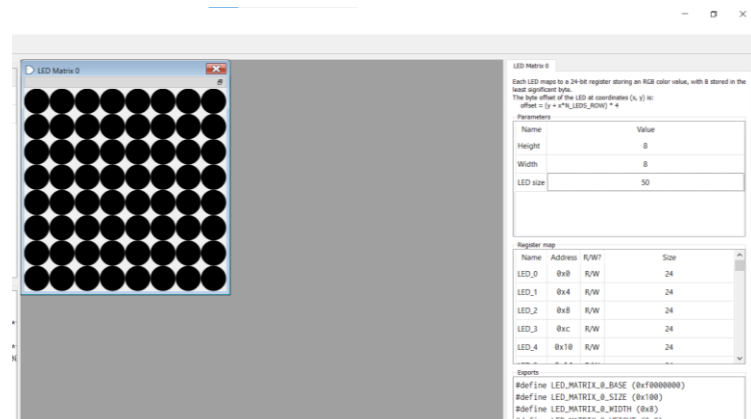


Figure 6

4. Setup the D-Pad

Similar to the LED matrix, double-click on the “D-pad” device to get a D-pad on the screen if it does not exist. It is also possible to pop out both the LED matrix and the D-pad by clicking on the symbol underneath the red “X” of the matrix or pad (Figure 7). To put them back in place, simply double-click on them again.

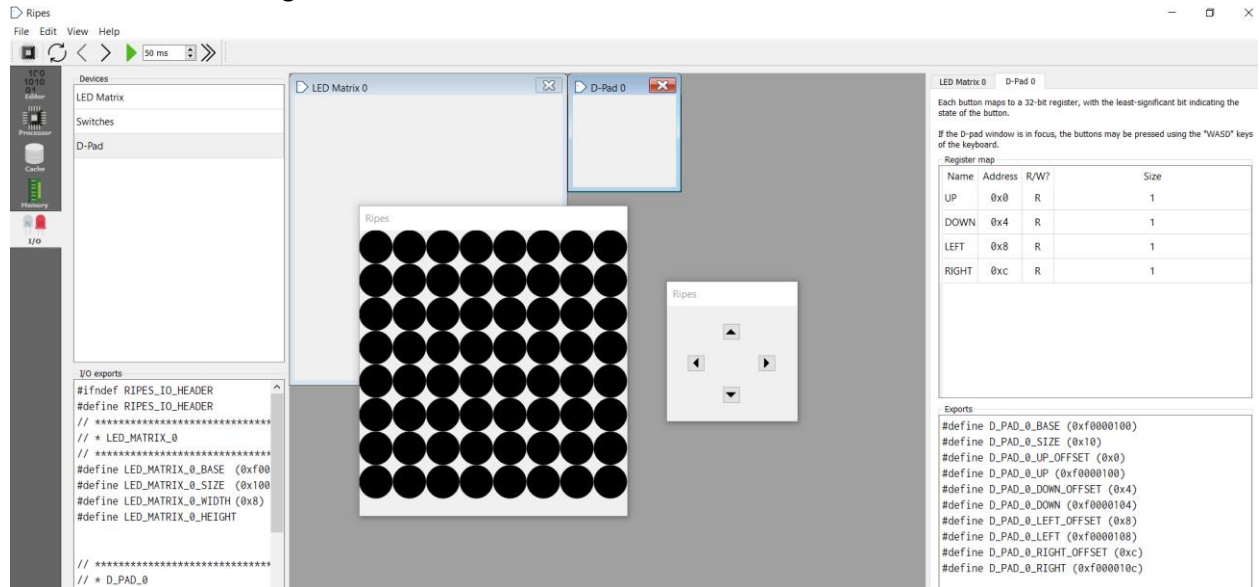


Figure 7

5. Running the Game

To start the game, click on the double arrow button on the tab at the top left and head back to Editor screen by clicking the “Editor” tab on the left (Figure 8). It is now time to start the game.



Figure 8

How to Play

The game is played in a series of rounds. Every round, a different player will take their turn to move the character across the LED matrix. The character will be represented by the red LED and can move anywhere except for the walls at the edges. The player can interact with a box represented by a green LED. This box can only be pushed by the player and can't be pushed across the wall. The aim is to push the box on the stationary target represented by a blue LED light.

Start of a Round

The game will first request the number of players for the game. Type the number of players into the console and hit enter. The LED matrix will light up and the game will commence. Player 1 will immediately begin their turn and try to solve the puzzle in the least amount of moves possible (Figure 9).

Player Actions and Restarting Turns

Each player is trying to complete the puzzle in the smallest amount of moves. The player is able to move left, down, up, and right as long as it's within the boundaries of the white LED wall. However, it may be possible to push the box in a place where the game cannot be solved. In this case, the player may choose to restart their turn by moving the character into one of the walls four consecutive times. This will return the box and the character to its original starting position. However, this comes with a penalty as the number of moves is still accumulating.

End of a Turn

When the player finally pushes the box onto the target, their turn will finish. The console screen will output a message indicating the player name and the number of moves it took to complete the puzzle (Figure 10). Immediately after the prompt, the matrix resets and the next player will have their turn.

```
How many players?  
2  
Player 1 completes in 13 moves  
Player 2 completes in 1 moves
```

Figure 10

End of the Game

When all players have taken their turn, a Leaderboard will appear with the order of players from the least to most moves (Figure 11). At that point, the program will stop running indicating the end of the game.

```
How many players?  
2  
Player 1 completes in 13 moves  
Player 2 completes in 1 moves  
Leaderboard  
Player 2  
1 moves  
Player 1  
13 moves
```

Figure 11

Winning the Game

The player who completed their turn with the least amount of moves wins the game. The players can then click on the double arrow button at top left tab to restart a new game round.

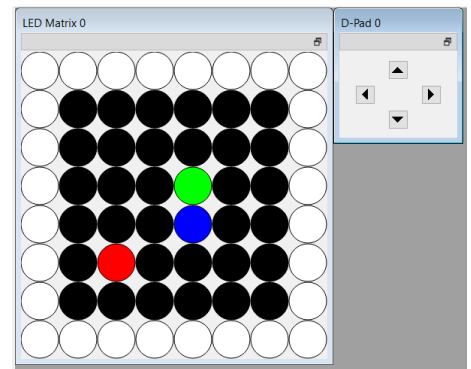


Figure 9

