

Wipeout

FEATURES

- Outputs include CCIR for AY-3-8606
- Operation from a 3.579545MHz clock
- One or two player games
- Digital on-screen scoring
- Sound generation for tones to indicate hits of ball to bat, ball to objects, and ball to border
- Outputs and power requirements compatible with Gemini Economy "8600" Game Series to allow plug-in operation

DESCRIPTION

The AY-3-8606 game circuit has been designed to provide an active paddle/squares game using a standard television receiver. The circuit is intended for use with a 625 (AY-3-8606) line receiver.

OPERATION

The AY-3-8606 utilizes two potentiometers (one for each player) one axis only of each joystick to produce control voltages for internal Schmitt triggers. These position the player's bats in the vertical axis only to allow play of the game. The circuit displays an on-screen score color coded to each player, processes the game logic and produces a composite sync, color burst location and blanking signals for a standard line TV receiver. Sound output is also included to produce tonal sounds for ball hits to bats, ball hits to borders and ball hits on objects with a minimum number of external components.

The outputs are designed for compatibility within the Gemini Economy "8600" Game Series. Game selection is made via a 4 strobe, 3 select switch matrix with either fixed or momentary contact closures.

Two momentary switches that ground the input serve control pins are used to start the ball into motion after reset or when a reserve is necessary according to game rules. Three skill selection switches are used to determine game difficulty.

GAME OPERATION

Select 1 Strobe 1 (Game #1)

A single-player game in which the player manipulates the paddle in the vertical axis after manually serving the ball. The objective is to wipe out as many boxes as possible in the seven serves that are allowed during a single game.

Select 1 Strobe 2 (Game #2)

A single-player game in which the player manipulates two paddles at each end of the playing area in the vertical axis after manually serving the ball. The objective is to wipe out as many boxes as possible in the seven serves that are allowed during a single game.

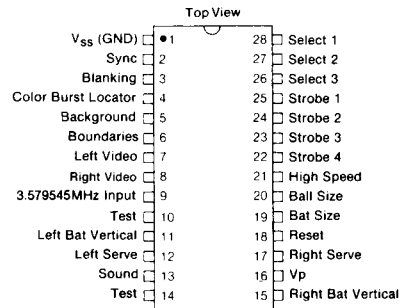
Select 1 Strobe 3 (Game #3)

A two-player game in which each player manipulates his paddle at the ends of the playing area in the vertical axis. The ball is served by the last player to score after game is in play. The objective is to wipe out all boxes in the playing area. The winner ends with the highest score.

Select 1 Strobe 4 (Game #4)

A two-player game in which each player manipulates his paddle at the ends of the playing area in the vertical axis. The ball is served by the last player to score after the game is in play. The objective

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is to wipe out all the boxes in the playing area. The winner ends with the highest score. The ball will rebound off the center barrier.

Select 2 Strobe 1 (Game #5)

A single-player game in which the player manipulates two different colored paddles at each end of the playing area in the vertical axis after manually serving the ball. The objective is for the player to wipe out as many correct colored objects depending on which color paddle hits the ball into the playing area as possible. The game ends when all of one color objects are wiped out.

Select 2 Strobe 2 (Game #6)

A two-player game in which each player manipulates his paddle at the ends of the playing area in the vertical axis. The ball is served by the last player to score after the game is in play. The objective is to wipe out as many boxes color coordinated with the player's paddle. The first color completely wiped out wins.

Select 2 Strobe 3 (Game #7)

A two-player game in which each player manipulates his paddle at the ends of the playing area in the vertical axis. The ball is served by the last player to score after the game is in play. The objective is to wipe out as many boxes color coordinated with the player's paddle. The first color completely wiped out wins.

Select 2 Strobe 4 (Game #8)

A single-player game in which the player manipulates the paddle in the vertical axis after manually serving the ball. The object is to wipe out as many color coordinated boxes with the player's paddle as possible in the seven serves that are allowed during a single

game. The ball alternates colors on each rebound, thus it can only hit one color square to wipe out and is transparent to the other color at any one time. After a hit and rebound, the ball can wipe out the opposite color square.

Select 3 Strobe 1 (Game #9)

A single-player game in which the player manipulates the paddle in the vertical axis after manually serving the ball. The objective is to break through the end wall and score on as many blocks as possible. The game ends after either seven serves or the first breakthrough.

Select 3 Strobe 2 (Game #10)

A two-player game in which each player manipulates his paddle in the center of the playing area in the vertical axis. The ball is kept in motion by each player trying to protect the wall behind his paddle. If a player misses a hit with the paddle, the ball will hit the wall and one block will disappear and the score will increment for the opposite player. The objective of this game is to knock out as

many blocks to get a high score before breaking through the wall. The first player to hit the ball through an open section of a wall ends the game.

NOTE: If the ball hits the left wall at a point where three blocks connect from the lower edge, the block in the same direction as the trajectory will disappear.

SKILL SELECTION

The games mentioned can be made more difficult by selecting one or more of the following skills:

1. Bat Size (left player only)
2. Ball Size (in large ball size, bat must hit center of ball)
3. Ball Speed

A ground on any of these function pins shall:

1. Halve the bat size
2. Halve the ball size
3. Double the ball speed

ELECTRICAL CHARACTERISTICS

Maximum Ratings*

Voltage on any Pin with Respect to V_n Pin -0.2V to 12V
 Storage Temperature Range -20°C to +70°C

Standard Conditions (unless otherwise noted)

$V_p = +7.5$ to $+9.0$ volts
 Ambient Operating Temperature Range 0°C to +40°C
 Characteristics at +25°C and $V_p = 7.5V$

* Exceeding these ratings could cause permanent damage to the device. This is a stress rating only and functional operation of this device at these conditions is not implied — operating ranges are specified in Standard Conditions. Exposure to absolute maximum rating conditions for extended periods may affect device reliability. Data labeled "typical" is presented for design guidance only and is not guaranteed.

Characteristics	Min	Max	Units	Conditions
CLOCK INPUT				
Frequency	—	—	MHz	45-55% duty cycle
Logic '0'	0	0.5	V	
Logic '1'	$V_p - 2$	V_p	V	
Leakage	—	100	μA	
CONTROL INPUT				
Logic '0'	0	0.5	V	May contact resistance of 1K to V_n
Logic "1"	$V_p - 2$	V_p	V	
Input Impedance	—	—	K Ω	
OUTPUT PINS 2-8, 13				
ON	—	1	V	$I_{out} = 2mA$ $V_{out} = V_p$ at 7.5V
OFF	—	100	μA	
OUTPUT PINS 22-25				
ON	—	1.0	V	$I_{out} = .5mA$ $V_{out} = V_p$ (open drain)
OFF	—	100 μA	μA	
Power Supply Current	—	75	mA	

VIDEO