PONG Dan Boris

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Other Systems

Arcade

Misc

Dan Boris Pong

Pong was designed by Al Alcorn and released by Atari in 1972. Although a lot of people mistakenly believe it was the first arcade game (this designation actually goes to Computer Space released the previous year), it is undoubtedly the first truly successful arcade game and lead the start of the video arcade and ultimately the video game industry. Pong is interesting from a technical perspective because like most of the early arcade game it did not use a microprocessor but was implemented entirely in discrete logic.

System Specs

Hardware: Discrete logic, no CPU.

Number of Chips: 66

Graphics: 455x262 pixels, monochrome

Links

Pong Story
This site has a good summary of the early history of videogames and lot of information on Atari's arcade Pong as well as Odyssey and other home Pong systems.

Wikipedia

Technical Information

Circuit Description Blog
I have recently complete a very detailed description of how the Pong circuit works on my Blog over at Atari Age.

Schematics
The original Atari schematics that are found on the net are of pretty poor quality and are very hard to read. When I went to do my circuit description blog, the first thing I did was re-draw the schematics. You can get them here:
Schematics PDF Format

Schematics in Express PCB .SCH format - These can be read using the free schematics capture software from Express PCB.

IC List - List of all the chips used on the Pong board.

Simulation

DiscreteSIM 1.0

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Prerequisites

To run DiscreteSIM you will need the Microsoft .NET Framework 1.1 installed. You can get this from Microsoft's web site.

What is DiscreteSIM?

Discrete SIM was designed as a proof of concept for a method of simulating the operation of discrete logic arcade games. Since these machines did not have a CPU and ROM code it's hard to simulate these machines using traditional emulation. Pure functional simulation of these games is also error prone especially since most people do not have access to the original hardware to compare against.

The approach taken by DiscreteSIM is to simulate the game circuit at the component level using a generic digital logic simulator. This allows the node list of the original circuit derived from the schematics to be input into the program and then simulated to see the video output and game mechanics.

Unfortunately the component level simulation is takes a lot of processing power so even on a very fast PC it probably will not produce a playable frame rate. On an AMD Athlon 64 3000+ system it takes about 8 seconds to render each frame.

DiscreteSim Executable

DiscreteSim Source

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