

THE SCISICIDE EXPERIENCE: DEVELOPING A MODERN GAME FOR A CLASSIC SYSTEM

By Joe Grand (joe@pixelspast.com)
July 15, 2003

Inspiration can strike at the funniest moments. I had known for weeks that I wanted to create a new game for the Atari 2600 Video Computer System, but I had no idea what the game would be. I found myself jolted awake at three o'clock in the morning and before I knew it, I was standing at my whiteboard sketching out my initial playfield and game design ideas. Two months and many late summer nights spent debugging code and building cartridges, SCISicide (pronounced 'skuzzy-side'), my first Atari 2600 game, was complete. I had finally done it. A modern game for a classic video game system.

Released in 1977, the Atari 2600 was the first and arguably most successful cartridge-based home video game system of all time.

Twenty five years later, a small community of developers, collectors, and game players still exists to pay homage to the great system that held their hand through awkward teenage years, first dates, and high school dances. Millions of kids grew up with the Atari 2600 as their best friend and sidekick, and if you were the kid with the Atari on your block, you suddenly had a neighborhood of friends at your door, begging to

play the latest games. Asteroids. Defender. Pac-Man. The Atari had it all.

I have an emotional connection to the Atari that hasn't been replicated with any other console. No gaming system today can compare to the simplicity of the Atari 2600 games, the beauty of the hardware design, and the sleek woodgrain design. Creating a homebrew game for an "obsolete" classic game system was no easy task.

"SCSicide, as its name suggests, is nerdiness to the core. You are a disk drive read head, and your mission is to read the color-coded bits of data as they scream past you on 10 separate data tracks. As each bit is read, your read head changes color to indicate which random bit you must read next.

Read all of the bits in the required order and you advance to the next platter (level). If you take too long, your latency buffer times out, your disk crashes and the game ends. Your score is displayed at the top of the screen in, of course, hexadecimal notation." (Ben Valdes, staff writer for Classic Gamer Magazine)

The SCISicide project was, like many things, conceived in the bed-

room, programmed on weekends and in covert moments at work, and built in my dusty workshop. 50 cartridges. By hand. Essentially, SCISicide is a psychotic, instinctive reflex game and was the first paddle-based homebrew game for the Atari 2600. SCISicide was designed to be easy to understand yet difficult to master, taking its cue from the game that started it all, Pong.

AUTHOR BIO

Joe Grand is the principal engineer at Pixels Past, a video game design and development firm created to provide the gaming industry with innovative products and the necessary tools to build games for classic video game systems. Such products include the newly released Redemption 5200 controller adapter and custom printed circuit boards for the Atari 2600, Atari 5200, Atari 8-bit computer, and ColecoVision consoles. Pixels Past is a division of the product development and intellectual property licensing firm Grand Idea Studio, Inc.



Something that, if this were an arcade game, kids would be lining up and pumping quarters into the cabinet as quickly as they could.

In today's world, gaming consoles are nothing more than souped-up PCs with fancy industrial design. Current programmers deal with things like Pentium or Power PC processors, nearly 1GHz system clocks, 64MB of high-speed RAM, game storage on 4.7GB DVDs, custom-designed three-dimensional graphics processors, and professionally-scored orchestral sound tracks. I had to deal with a 1MHz system clock, 128 bytes of RAM, 4K ROM cartridge size, and counting micro-processor clock cycles to make sure my graphics were drawn properly onto the television. Current programmers also have to deal with large corporations, middle management, consultants, missed deadlines, musicians, and artists. The programmer is just a notch on the game development gear. I wanted more control than that.

From concept to completion, the SCISicide project was essentially a one-person show. I had to program the game, create a new circuit board for use in old Atari 2600 cartridge cases, design the cartridge label, print the manuals, and build and test the games. The original Atari 2600 game developers were tasked with all aspects of the process, including concept, graphics, sound, design, and implementation. Twenty years later, the creation of SCISicide was no different.

Using online resources such as the Stella Development List (which consists of the most brilliant assembly language programmers I have ever encountered, all eager to share their expertise and opinions), relying on Atari programming documentation dating back to 1979, and using a modern PC for game emulation and circuit design, the creation and development of SCISicide was a perfect mix of combining old and new technologies. If I had a bug that I couldn't squish, I'd post a code

"In today's world, gaming consoles are nothing more than souped-up PCs with fancy industrial design."

— Joe Grand

snippet to the Stella list. Often, within hours, a solution was magically e-mailed to me by someone I'd never met in person. Sample code, beta versions of our games, and newly discovered tricks of tweaking the Atari 2600 system to do things it was never intended to do all flow freely within the Atari community. It's all about the love of the system.

There were specific challenges I had to face when designing SCISicide for the Atari 2600. Those challenges were a few of the reasons why I decided to go head-to-head with the vintage system in the first place. I had to worry about squeezing out a single byte of RAM or saving a few bytes of ROM to add another function or game feature. At times, the debugging process required so much effort and was so frustrating that I had considered dropping the project altogether. Many game designers, past or pres-

ent, have felt that pain at one time or another. For a game that I was only going to make a few hundred copies of, sell for \$20 at some gaming conventions, and walk away with enough profit to buy an ice cream cone (after reimbursing myself for all the hardware costs to build cartridges), I continuously questioned why I decided to write this game. Even still, the project was well worth the effort in the end, as I had created something that many people didn't have the skills to.

Developing a new video game for classic consoles is a lost art, but it seems that more and more people are willing to expend time and energy to learn the ways of the ancients. I wanted to play a part in getting people addicted to Atari like I was addicted to Atari, and developing a modern game for the system was the best way for me to do it.

