

Sprite Graphics

Prof. Stephen A. Edwards
sedwards@cs.columbia.edu

Columbia University
Spring 2006

Sprite Graphics -- p. 11

Sprite Graphics: Pac-Man



Sprite Graphics -- p. 21

Sprite Graphics: Super Mario Bros



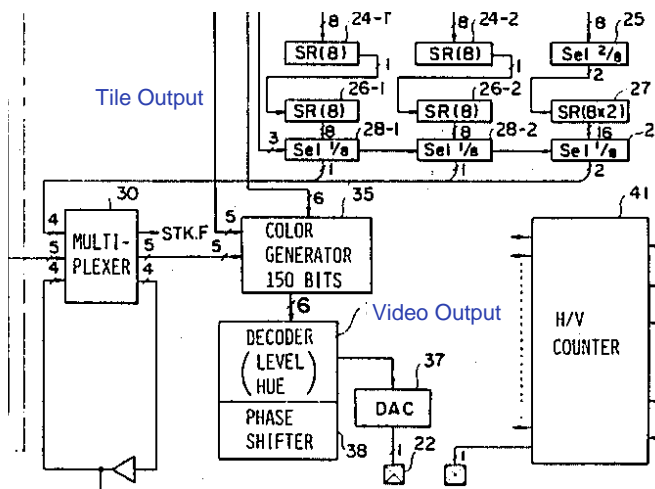
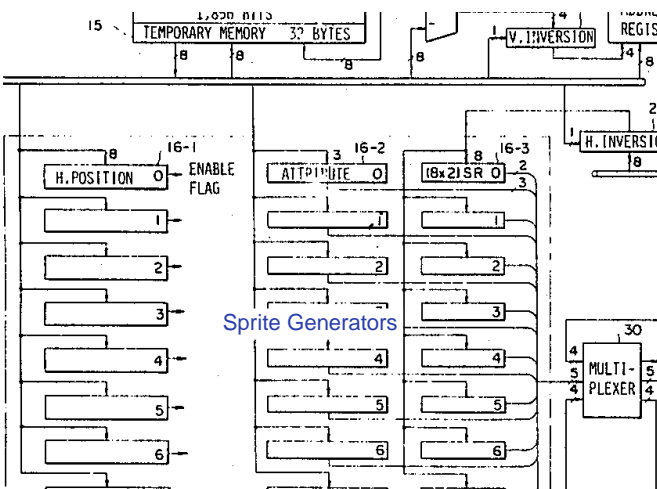
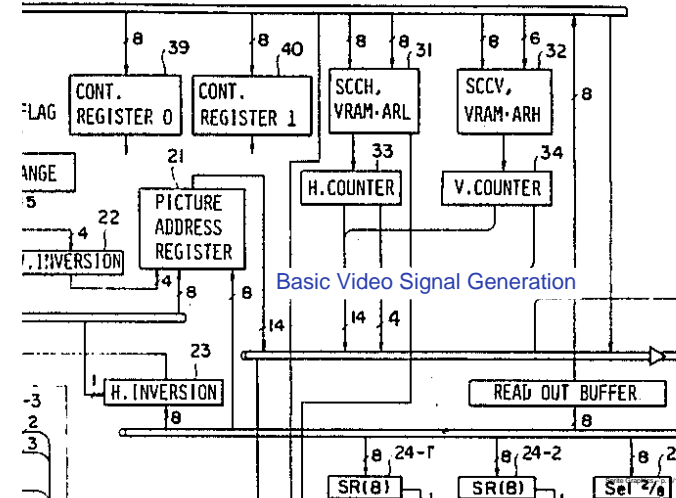
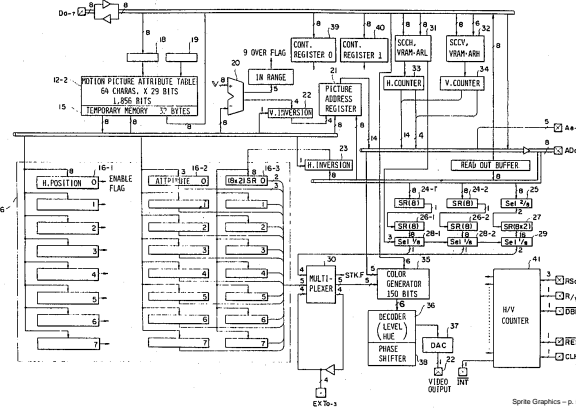
Sprite Graphics -- p. 31

Sprite Graphics: Excitebike



Sprite Graphics -- p. 41

Nintendo NES/Famicom



Basic Operation

For each line,

- Fetch color palette
- Fetch tiles
- Fetch tile bitmaps
- Read sprite location data for 64 sprites
- Save and prioritize up to 8 visible sprites

Simplified Memory Map

Pattern Table: bitmaps for tiles & sprites
Name Table: Tile numbers
Attribute Table: Extra tile color information
Sprite Palette: 16 colors
Tile Palette: 16 colors
Sprite Information

Sprite Graphics - p. 10/1

Sprite Information

7							0	
Y coordinate								
Tile (bitmap) number								
Vertical Flip	Horizontal Flip	Priority	0	0	0	b3	b2	b1
color bits								
X coordinate								

Tiles are 2×8 bytes each. First 8 are bitmaps of LSB color value, next 8 are next color bit.

Sprite Graphics - p. 11/1

References

Steven Collins. Computer Graphics during the 8-bit Computer Game Era. Siggraph Newsletter, 32(2) May 1998.

NES Development <http://nesdev.parodius.com>

NES Palette Generator

http://nesdev.parodius.com/kevin_palette.txt

Nintendo Entertainment System Documentation v. 0.40.

http://db.gamefaqs.com/console/nes/file/nes_tech.t

Ueda et al. TV Game System Having Reduced Memory Needs. United States Patent #4,824,106. April 25, 1989.

Sprite Graphics - p. 12/1