Sprite Graphics

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TMS9918 Video Display Processor
TMS9918 Video Display Processor
TMS9918 Sprite Generation
TMS9918 Sprite Attribute Table Entry

**Byte**

<table>
<thead>
<tr>
<th>BIT</th>
<th>VERTICAL POSITION</th>
<th>HORIZONTAL POSITION</th>
<th>NAME</th>
<th>COLOR CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>EARLY CLOCK BIT</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Notes:**
- The early clock bit is set to 0, 0, and 0, indicating no change in the clock signal.
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
Palettes: Groups of 16 colors selected from ≈ 60

Name Table: Tile numbers

Attribute Table: Extra tile color information

Pattern Table: Tile bitmaps
A Sprite Attribute Table Entry

64 sprites max; 8 per line max

<table>
<thead>
<tr>
<th>Y coordinate</th>
<th>Tile (bitmap) number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical Flip</td>
<td>Horizontal Flip</td>
</tr>
<tr>
<td>7</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Priority</th>
<th>b3</th>
<th>b2</th>
<th>color bits</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

X coordinate

Tiles are $2 \times 8$ bytes each. First 8 are bitmaps of LSB color value, next 8 are next color bit.
References


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.txt
