Sprite Graphics

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TUNNELS OF DOOM

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TMS9918 Video Display Processor
TMS9918 Sprite Attribute Table Entry

- **BYTE 0**: Vertical Position
- **BYTE 1**: Horizontal Position
- **BYTE 2**: Name
- **BYTE 3**: Early Clock Bit (000) and Color Code
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
Video RAM Memory Map

Palettes: Groups of 16 colors selected from \( \approx 60 \)

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>Priority</td>
<td>0</td>
</tr>
<tr>
<td>X coordinate</td>
<td></td>
</tr>
</tbody>
</table>

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

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
