Background

- High resolution video
  - Digital Terrestrial Broadcasting
  - Blu-ray Disc
- Large sized TV is gaining popularity
  - LCD TV, Plasma TV

- Large frame memory is required
  - Increase in cost by the increase of the external memory
  - Higher consumption energy
Objectives

- Image compression technique for reduction of frame memory size

Condition

- Guarantee Minimum Compression Ratio
- Low operation
Proposed method

Encoder

 Encode every pixel

Input 1 pixel data → component transformations → prediction → quantization → variable length coding → Compressed data

When finished encode every pixel, calculate compression ratio, and decide quantization step and coding coefficient.
Experimental result

- Image quality is evaluated by using PSNR

- Compared with conventional method [1]
- “count” in the following table is difference of bit from that of compression ratio of 50%

<table>
<thead>
<tr>
<th>DATA</th>
<th>Proposed method</th>
<th>Conventional method</th>
</tr>
</thead>
<tbody>
<tr>
<td>TV1</td>
<td>-25,096</td>
<td>55.527</td>
</tr>
<tr>
<td>TV2</td>
<td>-2,569,421</td>
<td>lossless</td>
</tr>
<tr>
<td>Pendulum</td>
<td>-15,611</td>
<td>42.343</td>
</tr>
<tr>
<td>CZP</td>
<td>-30,048</td>
<td>53.960</td>
</tr>
<tr>
<td>CZP (color)</td>
<td>-11,780</td>
<td>37.431</td>
</tr>
</tbody>
</table>

Quality improvement is confirmed in all data while compression ratio is guaranteed