Logical Shift Right Algorithm

Original Data

<table>
<thead>
<tr>
<th>B_{15}</th>
<th>B_{14}</th>
<th>B_{13}</th>
<th>B_{12}</th>
<th>B_{11}</th>
<th>B_{10}</th>
<th>B_{9}</th>
<th>B_{8}</th>
<th>B_{7}</th>
<th>B_{6}</th>
<th>B_{5}</th>
<th>B_{4}</th>
<th>B_{3}</th>
<th>B_{2}</th>
<th>B_{1}</th>
<th>B_{0}</th>
</tr>
</thead>
</table>

Shifted Data

| 0     | B_{15} | B_{14} | B_{13} | B_{12} | B_{11} | B_{10} | B_{9} | B_{8} | B_{7} | B_{6} | B_{5} | B_{4} | B_{3} | B_{2} | B_{1} |

================================================================================

Algorithm

Test Mask

| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

Original Data

| B_{15} | B_{14} | B_{13} | B_{12} | B_{11} | B_{10} | B_{9} | B_{8} | B_{7} | B_{6} | B_{5} | B_{4} | B_{3} | B_{2} | B_{1} | B_{0} |

Shifted Data

| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Set Mask

| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |

The Original Data is given in R0.
The algorithm builds the Shifted Data in R1 (or any other register)
The Test Mask is used to test a single bit of the Original Data, one at a time
The Set Mask is used to set a single bit of the Shifted Data, one at a time

Initialization:
Clear the Shifted Data register and initialize the two masks as shown.
Notice the 1-bit in the Test Mask is at the next higher index than the 1-bit in the Set Mask.

Repeat the following the required number of times:
Test a bit of the Original Data using the Test Mask.
If the tested bit is 1, set the next lower bit of the Shifted Data using the Set Mask.
Perform a left-shift on both the Test Mask and Set Mask.