The LTC®6947 and LTC6948 set a new bar in fractional-N PLLs by offering all the benefits of fractionalization – from frequency agility to overall reduced in-band phase noise, but without the downsides of unpredictable spurs, delta-sigma modulator noise and design complexity. Design using the LTC6947 and LTC6948 is made easy with the use of FracNWizard™, a free CAD tool that accurately simulates synthesizer performance.

**Features**
- Integrated VCO, up to 6.39GHz (LTC6948)
- 350MHz to 6GHz VCO Input Range (LTC6947)
- –226dBc/Hz Normalized In-Band Phase Noise Floor
- –274dBc/Hz Normalized In-Band 1/f Noise
- Excellent Spurious Performance
- Reference Input Frequency up to 425MHz
- Fast Frequency Switching (LTC6948)

**Output Frequency Options (Frequency in GHz)**

<table>
<thead>
<tr>
<th>OUT DIV</th>
<th>LTC6948-1</th>
<th>LTC6948-2</th>
<th>LTC6948-3</th>
<th>LTC6948-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUT DIV = 1</td>
<td>2.240 to 3.740</td>
<td>3.080 to 4.910</td>
<td>3.840 to 5.790</td>
<td>4.200 to 6.390</td>
</tr>
<tr>
<td>OUT DIV = 2</td>
<td>1.120 to 1.870</td>
<td>1.540 to 2.455</td>
<td>1.920 to 2.895</td>
<td>2.100 to 3.195</td>
</tr>
<tr>
<td>OUT DIV = 3</td>
<td>0.747 to 1.247</td>
<td>1.027 to 1.637</td>
<td>1.280 to 1.930</td>
<td>1.400 to 2.130</td>
</tr>
<tr>
<td>OUT DIV = 4</td>
<td>0.560 to 0.935</td>
<td>0.770 to 1.228</td>
<td>0.960 to 1.448</td>
<td>1.050 to 1.598</td>
</tr>
<tr>
<td>OUT DIV = 5</td>
<td>0.448 to 0.748</td>
<td>0.616 to 0.982</td>
<td>0.768 to 1.158</td>
<td>0.840 to 1.278</td>
</tr>
<tr>
<td>OUT DIV = 6</td>
<td>0.373 to 0.623</td>
<td>0.513 to 0.818</td>
<td>0.640 to 0.965</td>
<td>0.700 to 1.065</td>
</tr>
</tbody>
</table>

**LTC6948-4 Phase Noise at 6.236GHz**

![Phase Noise Chart]

**Uncompromising Fractional-N Synthesizers**

6GHz Fractional-N Frequency Synthesizers with Integer-N Spurious Performance

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FracNWizard Tool Simplifies the Design Process

**Design Features**
- Find Part Parameters Based on Your Frequency Plan
- Design Noise-Optimized Loop Filters
- Simulate Loop Frequency Response and Stability
- Simulate VCO and Reference Source Noise
- Simulate Output Noise Characteristics and Statistics
- Import and Export VCO, Reference and Output Noise Data

**Evaluation Features**
- Read and Write All Device Registers
- Configure Using a Block Diagram Programming Interface
- Troubleshoot Common Setup Problems
- Receive Alerts Due to Programming Errors

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