**AutoBench™ Version 1.1**  
**Benchmark Name: Fast Fourier Transform (FFT)**

**Benchmark Description**  
This EEMBC benchmark simulates an embedded automotive/industrial application performing a power spectrum analysis of a time varying input waveform.

The kernel computes the ‘radix-2’ decimation in frequency Fast Fourier Transform (FFT) on complex input values stored in real and imaginary arrays. After the time domain values are converted to the equivalent frequency domain, the power spectrum is calculated.

**Optimization Rules**

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<thead>
<tr>
<th>Category</th>
<th>Allowed</th>
<th>Disallowed</th>
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</thead>
<tbody>
<tr>
<td>ANSI C</td>
<td>X</td>
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<tr>
<td>Intrinsics/Language Extensions</td>
<td>X</td>
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<tr>
<td>Custom Libraries</td>
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<tr>
<td>Assembly Language</td>
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<td>HW Accelerators</td>
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</tbody>
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**Algorithm Flowchart**

1. Start
2. Initialize input test data
3. Get input values
4. Compute FFT
5. Compute power spectrum
6. Check if done?
   - Yes: Clean up, report results, stop
   - No: Repeat

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