AutoBench™ Version 1.1

Benchmark Name: Basic Integer and Floating Point

Benchmark Description

This EEMBC benchmark algorithm measures basic integer and floating point capabilities.

The benchmark calculates the arctan(x) function using the telescoping series:

\[ \text{arctan}(x) = x \times \frac{P(x^2)}{Q(x^2)} \]

where P and Q are polynomials, and x is assumed to be in the range from 0 to \(\tan(\pi/4)\). The benchmark limits the input domain to ensure this condition is met and adjusts any output values which correspond to limited input values so that the correct result is always obtained.

Optimization Rules

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Algorithm Flowchart

1. **Start**
2. Initialize and get test data
3. Get input value
4. Limit input domain
5. Compute arctan(x)
6. Adjust output value
7. Check: Are you done? (Yes/No)
8. If Yes, clamp, report results and stop. If No, go back to step 3.

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