



An Industry-Standard Benchmark Consortium

### 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:

$$arctan(x) = x * P(x^2) / Q(x^2)$$

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

Category	Allowed	Disallowed
ANSI C	X	
Intrinsics/Language Extensions	X	
Custom Libraries	X	
Assembly Language	X	
HW Accelerators	X	

#### Algorithm Flowchart

