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EEL4713
LAB #1

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1.1.1) The Geometric Mean for the speed is 2.151446 and the Geometric Mean for the Power consumption is 1.616064
1.1.2) The Pentium Pro ran %203 faster than its predecessor the Pentium.
1.1.3) The clock rate is 213 times greater and the power consumption is 28.7 times greater.
1.1.4) The energy stored in a capacitor is about .5 CV^2; the capacitive loads are listed below

80286	1.475805
80386	1.833576
80486	2.191347
Pentium	4.516857
Pentium Pro	16.01902
Pentium 4 (Willamaette)	56.92145
Pentium 4 (Prescott)	92.126
Core 2	90.57895

1.1.5) The largest change was a 47% decrease from the Pentium pro to the Pentium 4.
1.1.6) The geometric mean of the voltage ratio since the Pentium is 0.738727959.

Section 3:

The assembly program computes the following equation, as long as (a_0 * a_1 - a_2) is an even number. If it is not an even number, the loop continues forever. Registers a_0, a_1, and a_2 are used as operands and v_0 is used to store the result.

$$v_0 = \frac{[(a_0 * a_1)^2 - (a_2)^2]}{2}$$

Work:

Loop1:

t0 = a0 * a1

middle:

t2 = a0 * a1 +a2
t3 = a0 * a1 - a2

Loop2:

v0 = t2 * t3/2 = (a0 * a1 +a2) * (a0 * a1 -a2)/2 = [(a0*a1)^2 - a2^2]/2