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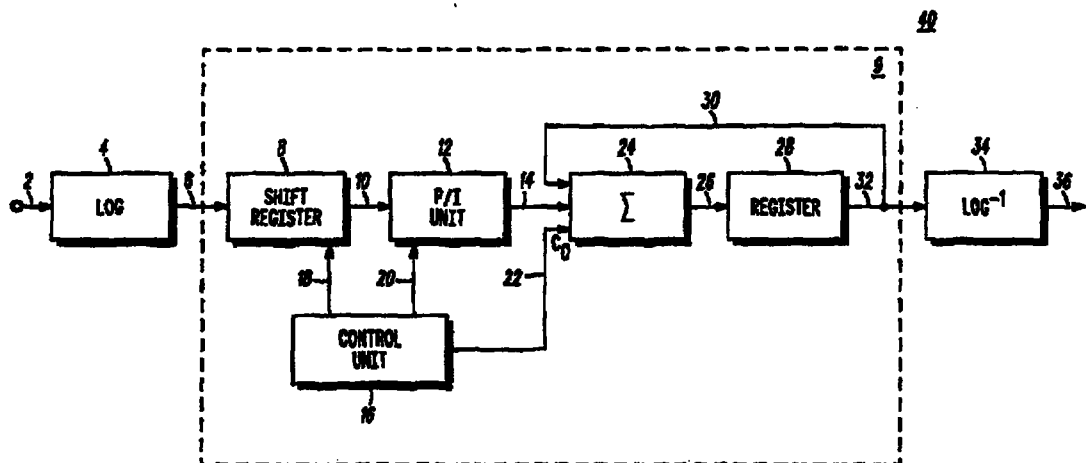
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(54) Title: EXPONENTIATION CIRCUIT UTILIZING SHIFT MEANS AND METHOD OF USING SAME



(57) Abstract

A circuit and method for computing an exponential signal x^x is provided. The circuit includes a logarithm converter (4) which converts an input signal to binary word that represents the logarithm of an input signal x . A first shift register shifts (8) the binary word in a bit-wise fashion to produce a first intermediate value; while a second shift register (28) shifts the binary word in a bit-wise fashion to produce a second intermediate value. The shift registers may be implemented using multiplexers. The shifting operations are equivalent to multiplying the intermediate values by a factor which is a power of two. The first intermediate value is either added to or subtracted from the second intermediate value to produce a combined value. An inverse-logarithm converter (34) converts the combined value to the exponential signal.