The following is Python 2.7 code.

```
def mult(x,y):
        if ( len(y) == 2 ):
                a = x[0]*y[0]+x[1]*y[1]
                b = x[2]*y[0]+x[3]*y[1]
                return [a,b]
        a = x[0]*y[0] + x[1]*y[2]
        b = x[0]*y[1] + x[1]*y[3]
        c = x[2]*y[0] + x[3]*y[2]
        d = x[2]*y[1] + x[3]*y[3]
        return [a,b,c,d]

# Only works for positive powers!
def matrix_power( x, n ):
        if ( n == 1 ):
                return x
        if ( n%2 == 0 ):
                return matrix_power( mult(x, x), n//2 )
        return mult(x, matrix_power( mult(x, x), n//2 ) )

# fibonacci example:
A = [1,1,1,0]
v = [1,0]

x = 1000000
print mult(matrix_power(A,x-1),v)[0]
```