
Subject: Speedy Julia Set Fractals

Posted by [Caleb](#) on Sun, 06 Sep 2009 21:44:00 GMT

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Hello!

I have a quick question about some fractal work I am doing. I know that doing matrix multiplications and histograms can exponentiate processes that are historically done with for loops. I have been trying to think of a way to do this with a fractal program I just wrote. Here is a snippet of the code that I want to speed up:

<code>

```
; Loop through and do calculations on each point:
```

```
FOR i = 0, x_size-1 DO BEGIN
```

```
    FOR j = 0, y_size-1 DO BEGIN
```

```
        ; Initialize number of iterations:
```

```
        num = 0
```

```
        ; Complex value of the current coordinate point:
```

```
        z = COMPLEX(FLOAT(i-X_OFFSET)/(X_OFFSET*SCALE),FLOAT(j-Y_OFFSET) /  
(Y_OFFSET*SCALE))
```

```
        ; Calculate value of F(z) at above z:
```

```
        z1 = z^K + c
```

```
        ; Take magnitude of the above value (z1):
```

```
        mag = ABS(z1^K + c)
```

```
        ; Do loop until mag is greater than threshold or max iterations  
        have been calculated:
```

```
        WHILE ((mag LE THRESH) AND (num LT MAX_ITERATION)) DO BEGIN
```

```
            ; Re-Calculate value of F(z) at above z1:
```

```
            z1 = z1^K + c
```

```
            ; Take magnitude of the above value (z1):
```

```
            mag = ABS(z1^K + c)
```

```
            ; Increment iteration variable:
```

```
            num++
```

```
        ENDWHILE
```

```
        ; Value of matrix is set to iteration number:
```

```
grid(i,j) = num
```

```
ENDFOR
```

```
ENDFOR
```

```
</code>
```

My problem is that I have a while loop for every iteration of my matrix which can run up to 256 iterations if need be. Can I speed of these calculations without going to multiple cores?

Oh and if you need more of the code let me know and I'll post it.

Thanks!

Caleb Wherry
