Subject: Speedy Julia Set Fractals
Posted by Caleb on Sun, 06 Sep 2009 21:44:00 GMT
View Forum Message <> Reply to Message

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
