Re: Hardware Fractal Generator (HFG) for Mandelbrot Movie?

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On Sat, 5 Apr 2008 15:39:33 −0700 (PDT), mike3 <mike4ty4@xxxxxxxxx>
wrote:

> Hi.
>
> I was wondering: What would it take to have a special hardware fractal
> generator (HFG)
> that could calculate, say, the Mandelbrot set, to extremely deep zoom
> levels (say,
> 4096 bits of precision (!))? How much of an advantage would it offer
> over a regular
> computer?

(snip)

> Is this possible?

Judging from the improved speeds of assembly coded Mandelbrot
algorithms and edge tracing routines, a dedicated hardware embodiment
should go whizzing at impressive speeds.

Two similar constructs come to mind. The Feistel cipher is often
depicted as a ladder of calculations which are only slightly similar
to the Mandelbrot iterates but provides a model for the hardware
embodiment.
http://en.wikipedia.org/wiki/Feistel_cipher#Construction_Details

Another similar construct is the Linear Predictive Coding chip first
used in the Texas Instruments toy, Speak and Spell.
http://en.wikipedia.org/wiki/Speak_&_Spell_(game)
"The Speak & Spell used the first single−chip voice synthesizer, the
TI TMC0280, which utilized a 10th−order linear predictive coding (LPC)
model and the electronic DSP logic.[2]."

The Speak and Spell chips produced the effect of a ladder of

difference filters in order to simulate the human voice box. Depending on your interest, a search for the current expressions of these technologies should illuminate the basic approach for a dedicated M−brot generator. My guess is that standard DSP IC's would suffice for the building blocks.

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