

Re: microprocessor controlled SMPS

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In article <4bea06d1.0406070143.57cdef1f@posting.google.com>, artem_bond <artem_bond@mail.ru> wrote:

>Hello all.

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>I have a principal question about SMPS with microprocessor. SMPS
>without microprocessor (UC3842) is simply. But I'm thinking about
>putting feedback to the CPU, more protections from stupids and other
>things. But, using microprocessor could be dangerous because it's
>could be hang-up by EMI or errors in firmware.

Hmmmmm.

That you seem think units will ship with "errors in the firmware" is a bit scary. If you were doing it with Rs and Cs and op-amps, you wouldn't ship it with errors in the component values. The firmware for a switcher is going to be simple enough that you can prove it is correct.

As to the real problem:

If you want this supply to always come on and only want some of the tuning to be done by the micro, I suggest you look at the nonvolatile digital pots made by Dallas Semi and others. The micro can tune the values as needed and should the micro fail, in a way other than going crazy, the values will stay as set and no great harm will be done.

If the supply must have the micro controlling it at all times, you can add a watchdog one-shot to the external electronics. If the micro doesn't keep pulsing its input, the oneshot shuts the thing down. I suggest an analog RC based oneshot and not something digital. With digital stuff there is too much temptation to let the fox guard the chickens. You don't want the watchdog to in anyway depend on the oscillator that clocks the micro.

I suggest you pick your supply topology so that failure of the micro doesn't allow the output voltage to go very high. This argues against using a flyback design.

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