Re: New ARM Cortex Microcontroller Product Family from STMicroelectronics

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- *From*: rickman <gnuarm@xxxxxxxxx>
- *Date*: Fri, 22 Jun 2007 12:29:07 −0700

On Jun 22, 2:34 pm, Eric <englere_...@xxxxxxxxx> wrote:

> On Jun 22, 12:40 am, "Bill Giovino" <conta...@xxxxxxxxxxxxxxxxxxxx>
> wrote:
>
>> However, if you are running out of Flash with the CPU at a higher speed than the Flash,
>> and so the Flash requires wait states while taking advantage of the Harvard architecture
>
> Any idea if the ST Cortex M3 can run without wait states from flash at
> their rated speed? That would be quite impressive.

The data sheet says it requires one wait state from 24 to 48 MHz and 2
wait states above 48 MHz. So compared to the Luminary parts running
at 50 MHz with *NO* wait states, I say the ST M3 parts are dogs.

The power consumption is not great either, at least not compared to
parts like Atmel SAM7. The advertisement says it gets "0.5 mA/MHz in
RUN mode from Flash", but this is not very accurate. The power curve
does not have a 0.5 mA/MHz slope. The STM32F103 data sheet shows
higher current per MHz at low clock speeds with a Y intercept of about
9 mA. I think the lower mA/MHz at higher clock speeds reflects the
lower MIPS available due to the required wait states. Accounting for
that, the mA/MHz ranges from 0.54 at 24 MHz to 0.88 at 72 MHz. I
think this may be better than the Luminary Stellaris parts, but not as
good as the Atmel SAM7 parts which are claimed to be a true 0.5 mA/MHz
with very low static current in the uA range. I have not looked at
the newer Luminary parts in detail.

Actually, I guess a power factor would be required for the SAM7 parts
as well since they run with one wait state at their top speed. So
maybe the STM32 part do better on power than I realized!

I am still waiting for Luminary to announce parts on a smaller

geometry process. I was told they would be out toward the end of the year in a 130 nm process, IIRC. These parts should be very low power, but I don't know if they will keep 5 volt tolerance and what the static current will be.

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