

Re: More on Coldfire BDM project

Source: <http://coding.derkeiler.com/Archive/General/comp.arch.embedded/2006-05/msg01109.html>

- *From:* David Brown <david@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>
 - *Date:* 22 May 2006 09:32:52 +0200
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Jim Adamthwaite wrote:

Hi folks.

More on the BDM adapter. Two files Protel '98 files are attached: schematic file "GnuBdm.Sch", PCB files "GnuBDM.pcb". I would have converted it to some more generally readable format, but Protel'98 has limited export facilities. If anyone can convert & re-post to the group this would be appreciated.

I don't think posting to the newsgroup would be appreciated by many – this is strictly a text-only newsgroup.

Have you joined the bdm tools mailing list?
http://sourceforge.net/cvs/?group_id=81515

As far as converting the files is concerned, there's really only two things that can be done. One is generating output formats – a pdf image for the schematic, and gerber files for the pcb. The other is saving the files in Protel ASCII format, which can then be imported by some other systems (such as Pulsonix and Orcad, and probably several others). For the pcb file, it's also worth making an ASCII format of the pcb without planes – if someone wants to import it, it's almost certainly easier to add the planes later. It's also worth making the netlist available in a few different formats. That way, anyone trying to make their own version using different tools have a comparison check, and can also skip the schematics step.

I submit it in the hope some of you can read the files and comment. I intend to make board copies or kits cheaply available (at cost) to anyone interested when I feel confidence in its function.

I haven't looked at the design in detail yet – I'll see if I get a chance this evening.

The board is 53mm * 53mm at present. I may be able to squeeze it further but there is risk of loss of 'stiffness' of the ground plane with a double sided board. It uses 74xxxNNN logic to avoid the need for a new PLD programmer.

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The BDM for Coldfire doesn't really need much logic, so 74xxx devices should be sufficient (they are really only needed for signal reshaping). The CPU32 is another matter – a PLD really helps there.

Suggestions are invited for choice of brand & family for the logic chips, so far I have only done a quick skim of what is available.

Is the device compatible with more CPU's beyond the MCF5407? It would be an advantage. I presume that the connector pinout is only a 'standard' engendered by the FreeScale EVM kit & set in concrete by P&E.

David's Brown & Hearn mentioned GCC & GDB. I scoured GNU's website in search of mention of Coldfire & MCF5407, but did not turn up anything specific.

I haven't used anything beyond the MCF52xx devices myself.

Do I need a special version of GCC, or can I force the 'normal' (SUSE 10.0) PC-resident version to do it somehow?

You need a cross-compiler. When gcc binaries are built, you can choose the host you compile on, the host they are to run on (frequently these are the same), and the target for the generated binaries (if this is different, you've got a "cross-compiler"). For "standard" gcc, these three are all the same. To build your cross-compiler, you need to get the sources for binutils and gcc (and perhaps newlib) and configure them for the "m68k-elf" target. The sources are the standard gnu sources.

How does GDB fit into the picture? Is it able it make use of the adapter? This is my first cross-development project under Linux, I don't have a clear picture of what is necessary or possible. I have found the SourceForge m68k-bdm-1.3.0 stuff. Now to read it all & work out what it can do for me.

gdb works fine with the standard P&E parallel port debugger, using the patches from the bdm sourceforge project. If your debugger is compatible (I haven't yet checked), it will work with that too. If it is incompatible, it should be straightforward to change the patches to suit – although it is almost certainly easier just to change your schematics a little.

mvh.,

David

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Elucidation appreciated.
Jim Adamthwaite