Re: Hacking a SunPCi card − anyone tried this?

Source: http://sci.tech−archive.net/Archive/sci.electronics.design/2005−11/msg02096.html

- *From*: "Ken Taylor" <ken@xxxxxxx>
- *Date*: Sat, 19 Nov 2005 18:33:47 +1300

"Chris Jones" <lugnut808@xxxxxxxxxxxxxxxx> wrote in message
news:11nsn39k44f9i6c@xxxxxxxxxxxxxxxxxxxx
> Ken Taylor wrote:
>
> > "Chris Jones" <lugnut808@xxxxxxxxxxxxxxxx> wrote in message
> > news:11nq77h99s39rab@xxxxxxxxxxxxxxxxxxxx
> >> Hi all,
> >>
> >> I have access to, and the opportunity to play with, (though not at
> >> present
> >> ownership of) a large number of no−longer−required SunPCI cards. The
> >> model
> >> is Penguin, Bios V1.1.2 441B. These are basically an AMD x86 PC on a
PCI
> >> card which plugs into the bus of a SPARC based sun workstation, to
allow
> >> Sun users to run M$ windows / PC programs without getting a separate
box,
> >> power supply, hard drive, network connection etc. The card has a
400MHz
> >> AMD cpu, 2 DIMM banks, its own graphics chipset (SiS 5598), W48C67
clock
> >> generation, ESS1869F audio chip, Winbond W83877TF peripherals, it has
> >> USB1.1 I think, some slightly modified Award bios, a PIC16C64A
programmed
> >> by Sun, AFAIK to emulate a keyboard and mouse (to get the input from
the
> >> Sun keyboard and mouse and to provide this to the PC by emulating the
> >> hardware. The sticker on the PIC says MSKB 18 (c)1998), and it has an
> >> intel
> >> 21554 PCI bus bridge, to allow the Sun to access the PC memory I think,
> >> (or
> >> vice versa?) which allows the PC to render its screen inside a window
on
> >> the sun desktop, although there is the option to use the internal
> >> graphics
> >> hardware on the SunPCI card and the VGA connector on the card edge.
The
> >> card seems to also have an IDE interface though the connector has not

> >> been soldered on since the normal usage is to access the a file on the
> >> Sun hard drive via some software on the Sun CPU over the PCI bus bridge
> >> somehow.
> >>
> >> Anyhow, what I would like to be able to do is to make the card boot
> >> without
> >> the Sun workstation attached. It would be a nice little linux PC with
> >> only
> >> 25W maximum power consumption, and has USB so keyboard and mouse,
network
> >> and possibly even hard drive etc. could be attached, and could be used
as
> >> a
> >> VOIP box or for web browsing or whatever.
> >>
> >> Just applying power doesn't seem to do it − I tried plugging it into
the
> >> PCI
> >> bus of an old PC and the fan worked but nothing else. I think either:
> >> the PIC microcontroller or the Intel bus bridge IC might be holding the
> >> SunPCi in reset, or the modified bios on the SunPCi card might be
> >> unwilling to boot without some words of encouragement from a genuine
Sun
> >> workstation, or
> >> something I haven't thought of.
> >>
> >> If I plug it into the Sun machine and run the software on the SPARC cpu
> >> that
> >> tells the SunPCI to boot, then from what I remember, the internal video
> >> port of the SunPCI does become active and shows some text whilst the
bios
> >> boots properly and then when Win98 runs off the emulated hard drive,
the
> >> video is switched over to the window on the Sun desktop, so if it were
> >> possible to boot the SunPCi without the Sun then I ought to see
something
> >> on the video port.
> >>
> >> I considered trying to find out about an open−source bios which could
> >> replace the one on the board but it looks to me like these open BIOSs
are
> >> only available for specific motherboards.
> >>
> >> These cards are sitting in a pile at work and are causing me great
> >> anguish because I can see that they are basically complete low power
PCs
> >> and they will sit there forever gathering dust unless I figure out how
to
> >> persuade
> >> them to boot. Has anyone else played with one of these? (or ideally
I'd

> >> love it if one of the designers were lurking here and could give me a
> >> quiet
> >> hint...)
> >>
> >> Chris
> >>
> >
> > Take a look here:
> >
>
http://www.vdberg.org/~richard/Linux−on−SunPCi−mini−Howto/preface.html#OVERVIEW
> > as this due has set one up with Linux. The approach may give clues about
> > how to make it do MS stuff if that's your thing.
> >
> > Cheers.
> >
> > Ken
>
> Thanks, that is interesting, but it still is talking about using the card
> inside a Sun workstation. I don't want to use the card with a Sun
> workstation, I would like to be able to just solder on some power wires to
> an old PC power supply, and boot linux on the card by itself, the OS being
> loaded either by soldering on an IDE connector or from a USB drive.
>
> I think if I had some kind of logic analyser able to monitor the accesses
to
> the SunPCi card over the PCI bus of a Sun workstation, whilst the Sun is
> telling the card to boot up, this might enable me to figure it out.
> Unfortunately I don't have any such analyser.
>
> Chris

Hi. I understood that, but hoped that the detail of the article (and I
didn't read too far into it as I don't have one of these cards myself so it
meant little) might give you clues on how this is done, and therefore how to
'hack' it.

Cheers.

Ken

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- ***References***:
  - ♦ ***Hacking a SunPCi card − anyone tried this?***
    - ◊ *From:* Chris Jones
  - ♦ ***Re: Hacking a SunPCi card − anyone tried this?***
    - ◊ *From:* Ken Taylor

- ***Re: Hacking a SunPCi card − anyone tried this?***
  - *From:* Chris Jones

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