

# Re: P2B-DS and generic slotkets

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*Source:*

<http://newsgroups.derkeiler.com/Archive/Alt/alt.comp.periphs.mainboard.asus/2005-10/msg00655.html>

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- *From:* "Frank Galphin" <[fgalpin@xxxxxxxxxxx](mailto:fgalpin@xxxxxxxxxxx)>
  - *Date:* Tue, 18 Oct 2005 07:54:29 -0400
- 

"P2B" <[p2b@xxxxxxxxxxx](mailto:p2b@xxxxxxxxxxx)> wrote in message  
[news:Dxj4f.11066\\$VD4.618719@xxxxxxxxxxxxxxxxxxxxxxxxxxxx](mailto:news:Dxj4f.11066$VD4.618719@xxxxxxxxxxxxxxxxxxxxxxxxxxxx)

>

>

> Frank Galphin wrote:

>> "P2B" <[p2b@xxxxxxxxxxx](mailto:p2b@xxxxxxxxxxx)> wrote in message

>> [news:xJ%3f.6840\\$S43.1114160@xxxxxxxxxxxxxxxxxxxxxxxxxxxx](mailto:news:xJ%3f.6840$S43.1114160@xxxxxxxxxxxxxxxxxxxxxxxxxxxx)

>>

>>>

>>>Frank Galphin wrote:

>>>

>>>

>>>>"Paul" <[nospam@xxxxxxxxxxx](mailto:nospam@xxxxxxxxxxx)> wrote in message

>>>>[news:nospam-2809050108000001@xxxxxxxxxxxxxxxxxxxx](mailto:news:nospam-2809050108000001@xxxxxxxxxxxxxxxxxxxx)

>>>>

>>>>

>>>>>In article <[rK6dnTKsOMzsKKTTeRVn-ug@xxxxxxxxxxxxxxxx](mailto:rK6dnTKsOMzsKKTTeRVn-ug@xxxxxxxxxxxxxxxx)>, "Frank Galphin"

>>>>><[fgalpin@xxxxxxxxxxx](mailto:fgalpin@xxxxxxxxxxx)> wrote:

>>>>>

>>>>>

>>>>>

>>>>>>"Paul" <[nospam@xxxxxxxxxxx](mailto:nospam@xxxxxxxxxxx)> wrote in message

>>>>>>[news:nospam-2009050258060001@xxxxxxxxxxxxxxxxxxxx](mailto:news:nospam-2009050258060001@xxxxxxxxxxxxxxxxxxxx)

>>>>>>

>>>>>>

>>>>>>>In article <[YIedndI8cNDpoLLeRVn-gQ@xxxxxxxxxxxxxxxx](mailto:YIedndI8cNDpoLLeRVn-gQ@xxxxxxxxxxxxxxxx)>, "Frank Galphin"

>>>>>>><[fgalpin@xxxxxxxxxxx](mailto:fgalpin@xxxxxxxxxxx)> wrote:

>>>>>>>

>>>>>>>

>>>>>>>

>>>>>>>>"Stephan Grossklass" <[sgrokla-nospam04q2@xxxxxxxxxxx](mailto:sgrokla-nospam04q2@xxxxxxxxxxx)> wrote in message

>>>>>>>>[news:dgkejf\\$qsV\\$04\\$1@xxxxxxxxxxxxxxxxxxxxxxxx](mailto:news:dgkejf$qsV$04$1@xxxxxxxxxxxxxxxxxxxxxxxx)

>>>>>>>>

>>>>>>>>

>>>>>>>>>Frank Galphin schrieb:

>>>>>>>>>

>>>>>>>>>

Re: P2B-DS and generic slotkets

>>>>>>>>  
>>>>>>>>Hay all,  
>>>>>>>> Well subject says it all. I have 2 PIII 850's which are not the  
>>>>>>>>same  
>>>>>>>>stepping  
>>>>>>>>value. I have 2 generic slotkets the are supposedly dual capable.  
>>>>>>>>The  
>>>>>>>>system  
>>>>>>>>will boot with one of the 850's in slot 1 or slot 2. However when  
>>>>>>>>both  
>>>>>>>>are  
>>>>>>>>installed  
>>>>>>>>the system will not boot. The slockets are labeled "Cpu Card  
>>>>>>>>Rev.1.0"  
>>>>>>>>any  
>>>>>>>>ideas?  
>>>>>>>>  
>>>>>>>>"Dual capable" could also mean dual \*Celeron\* (Mendocino) capable,  
>>>>>>>>and  
>>>>>>>>many slot adapters are. This does not imply that dual CuMines work  
>>>>>>>>as  
>>>>>>>>well. Sometimes this also requires changing jumper settings, like  
>>>>>>>>on  
>>>>>>>>the  
>>>>>>>>MSI 6905 Master. Both the dual capable 6905 Master and the S370-DL  
>>>>>>>>have  
>>>>>>>>a 4-pin CPU selection jumper, which makes me suspect that this is a  
>>>>>>>>requirement for unmodded dual CuMine operation.  
>>>>>>>>  
>>>>>>>>Stephan  
>>>>>>>>--  
>>>>>>>>Home: <http://stephan.win31.de/>  
>>>>>>>>PC#6: i440BX, 2xP3-500E, 704 MiB, 250+80 GB, R9k AGP 64 MiB, 110W  
>>>>>>>>  
>>>>>>>>Hi Stephan,  
>>>>>>>> Well I tried the PIII 450 slot 1 and a celeron 500 "Mendocino  
>>>>>>>> core"  
>>>>>>>>together using  
>>>>>>>>the generic sloket and same as before would not boot in dual mode.  
>>>>>>>>Any  
>>>>>>>>other  
>>>>>>>>ideas?  
>>>>>>>>I know i need to find a Asus 370-dl slocket for really cheap. Then  
>>>>>>>>it  
>>>>>>>>might  
>>>>>>>>work.  
>>>>>>>>  
>>>>>>>>Frank  
>>>>>>>>  
>>>>>>>>Upgradeware Slot-T Conversion Kit \$30 each  
>>>>>>>><http://www.bythewizecomputers.com/products/7/9/104/1048>

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>>>>>>  
>>>>>>The Upgradeware web page:  
>>>>>><http://www.upgradeware.com/english/product/slott/slott.htm>  
>>>>>>  
>>>>>>Modification procedure for making Slot-T (Tualatin) slocket  
>>>>>>dual processor ready (for PIII-S Pentium):  
>>>>>>  
>>>>>><http://www.tipperlinne.com/slot-t.htm>  
>>>>>>  
>>>>>>I would try the adapter without the modification first.  
>>>>>>With your processors, the Slot-T may work without any mod.  
>>>>>>  
>>>>>>HTH,  
>>>>>> Paul  
>>>>>>  
>>>>>>  
>>>>>>Well I kinda got it working. The secret is the N33 pin as described  
>>>>>>here.  
>>>>>><http://www.hardwarecentral.com/hardwarecentral/reviews/1673/4/>  
>>>>>>Both processors are working fine in Dual mode however,  
>>>>>>the voltages are flaky. According to the hardware monitor the  
>>>>>>processors are requesting 2.0 volts instead of 1.65 volts. I really  
>>>>>>don't want to run these processors at 2.0 volts for to long. I don't  
>>>>>>think they will last. What I don't understand about that article  
>>>>>>is why is R3 being removed? What was it's purpose?  
>>>>>>Again any hints suggestions welcome.  
>>>>>>  
>>>>>>Frank  
>>>>>>  
>>>>>>"440bx design guide" – PDF pg.30  
>>>>>><http://www.intel.com/design/chipsets/designex/29063401.pdf>  
>>>>>>  
>>>>>>"GTL+ is a low output swing, incident wave switching, open-drain  
>>>>>> bus with external pull-up resistors that provide both the high  
>>>>>> logic level and termination at the end of the bus."  
>>>>>>  
>>>>>>One purpose of the resistors, is to function as the load  
>>>>>>resistor and also as a transmission line termination, to  
>>>>>>reduce signal reflections. If R3 is a 56 ohm resistor, perhaps  
>>>>>>that is its purpose.  
>>>>>>  
>>>>>>A good technical article on modding, should explain what each  
>>>>>>of the modifications is doing, and what the old connectivity  
>>>>>>achieved before the modder cut it up. Such information makes  
>>>>>>it possible for a third party to check the workmanship of  
>>>>>>the modder, and interpret what he/she is doing. Since Mr. Sassen  
>>>>>>chose not to help us in that way, it is hard to say what he  
>>>>>>has done.  
>>>>>>  
>>>>>>For example, I don't understand why Mr. Sassen has connected  
>>>>>>a 56 ohm resistor to ground. It could be that this grounding

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>>>>>resistor is physically underneath where R3 is located on  
>>>>>the other side of the board. In other words, a signal used  
>>>>>to have a 56 ohm resistor to Vtt, and now it has a leaded  
>>>>>resistor connected to ground, on the other side of the board,  
>>>>>as a modification. A 56 ohm resistor might make a good high  
>>>>>speed termination for some kind of logic, but if the signal  
>>>>>on that line is GTL+, a pullup resistor to Vtt makes a lot  
>>>>>more sense.

>>>>>

>>>>>Without a schematic diagram or a block diagram of what he has  
>>>>>done, I would need the module in my hands to figure out what  
>>>>>has been done.

>>>>>

>>>>>With regard to the voltage being requested, use an ohmmeter  
>>>>>to see if there is continuity from the VID pins in the socket,  
>>>>>to the SC242 edge connector. It could be the slocket doesn't  
>>>>>have them wired, or there is a DIP switch or something ? Are  
>>>>>you sure the slocket doesn't have a way to modify the VID  
>>>>>value ?

>>>>>

>>>>>This article describes how to do a "wire trick", in a situation  
>>>>>where there is no DIP switch to set the Vcore voltage. When  
>>>>>I needed to do a mod like this, I just cut the appropriate  
>>>>>VID tracks near the edge connector, and wired the signals as  
>>>>>required. (I modded a slocket that had no VID jumpers.)

>>>>>

>>>>><http://www.tipperlinne.com/p2b-ds.htm>

>>>>>

>>>>>Other info:

>>>>>

>>>>><http://developer.intel.com/design/chipsets/440/documentation.htm>

>>>>>

>>>>>(A dual processor 440BX motherboard schematic. This will not  
>>>>>teach you much, as the real action is on the slocket. Still,  
>>>>>this is one of the few reference schematics available for  
>>>>>download.)

>>>>>

>>>>><http://www.intel.com/design/chipsets/designex/BXDPDG10.PDF>

>>>>>

>>>>> Paul

>>>>>

>>>>>

>>>>>Well I got it working after a little effort. I ordered two of the  
>>>>>Upgradeware Slot-T adapters from Stratton computers. They were the  
>>>>>newer Version 1.1 adapters so

>>>>>I did not need to relocate resistor R2 to R3 Position as described here:

>>>>><http://tipperlinne.com/slot-t.htm>

>>>>>

>>>>>I haven't seen a v1.1 Slot-T yet. Did they add a jumper so you can select  
>>>>>X2 or N33 for the bus request signal, or just omit R2 and install R3 to  
>>>>>make N33 the factory default?

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>>>>

>>>>I suppose I should order a pair, check them out, and update my site...

>>>>

>>>>

>>>>>But let me tell you what I had to do to make those two PIII 850's  
>>>>>cooperate with each other. It turns out that one of the PIII 850's was  
>>>>>set to request 1.70 volts instead of 1.65 volts. Difference in stepping  
>>>>>I assume. So I set the Slot-T's to 1.65 volts for CPU 1 and 1.70 volts  
>>>>>for CPU 2. System booted and recognized two processors. I think YEAH!!!!  
>>>>>well that was short lived. I checked the hardware monitor and guess  
>>>>>what? They were requesting 2.0 volts. Boy was I confused. So just for  
>>>>>the hell of it I decided to set both Slot-T's to 1.65 volts. Well that  
>>>>>fixed the problem. The hardware monitor was reading 1.6 volts. YEAH  
>>>>>happiness. I guess the minor voltage difference was throwing off the  
>>>>>onboard voltage regulators. Well anyway like I said it is now working.

>>>>

>>>>Interesting!

>>>>

>>>>The two voltage regulators are quite independent, each controlled by the  
>>>>VID signals from their respective processors (or the VID jumper settings  
>>>>when running Slot-Ts), so there's no reason the processors cannot run at  
>>>>quite different voltages – and software like MBM will correctly report  
>>>>differing CPU voltages. The Slot-Ts in my main system have been set to  
>>>>1.35v and 1.40v for some time – the lowest stable settings – and MBM  
>>>>reports 1.37v and 1.41v respectively. Last time I checked with a meter,  
>>>>the actual voltages were about 100mV above what MBM reports. The BIOS  
>>>>displays 1.5v – it's not very accurate, and appears to round up in 0.5v  
>>>>increments.

>>>>

>>>>The BIOS only displays one CPU voltage. I would have expected that to be  
>>>>taken from one or other of the regulators – and your post prompted me to  
>>>>find out which one.

>>>>

>>>>I was wrong – testing proves the BIOS reports it's idea of the higher of  
>>>>the two Vcore voltages, regardless of which regulator is delivering it. I  
>>>>suppose reading both and displaying the higher one only took a few lines  
>>>>of code, but I was surprised. A few more lines and it could display both  
>>>>:-)

>>>>

>>>>I can think of three explanations for your observations when you had the  
>>>>Slot-Ts set differently:

>>>>

- >>>>1. Upgradeware screwed up the VID jumpers on the v1.1 adapters (unlikely)
- >>>>2. The BIOS reported a 1.7v setting as 2.0v because the regulators always  
>>>>run a little higher than the VID request, and the BIOS rounds up (less  
>>>>unlikely)
- >>>>3. You accidentally set the jumpers on one adapter to a higher voltage  
>>>>than you intended (no offense intended, I've done it)

>>>>

>>>>It would be most interesting if you could reproduce the 2.0v BIOS reading  
>>>>when the adapters are set to 1.7 and 1.65, then see what MBM reports. I

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>>>would be perplexed if it wasn't within 250mV of the jumper settings.  
>>>  
>>>BTW, if you aren't overclocking, those PIII 850's are likely to be  
>>>perfectly happy (and a little cooler) running at the 1.55v setting.  
>>>  
>>>P2B  
>>  
>>  
>> Hey P2B thanks for the response.  
>>  
>> Regarding the Ver 1.1 Slot T's there is no jumper setting to select  
>> either X2 or N33. The layout  
>> seems to be similiar to the picture posted on your site. Where you show  
>> R2 there is a 56 Ohm resistor  
>> and R3 is allready populated with a 0(zero) Ohm resistor. Wish I had a  
>> digital camera to show you.  
>  
> No need, I get the picture :-)  
>  
>> Looks like N33 is selected by default!  
>  
> Indeed. The 56 Ohm X2 pullup is not required according to Intel  
> datasheets, but it can't hurt.  
>  
> I don't suppose I'll be selling any more modded Slot-T adapters :-( It was  
> a nice sideline for the 2+ years it took Upgradeware to adopt my fix.  
>  
>> Well I did verify that I did have the jumpers set right and they were (No  
>> offense taken. I have done it too!)  
>>  
>> Well when I had the processors set to 1.65 volts for CPU 1 and 1.70 volts  
>> for CPU 2 I went ahead  
>> and booted into XP pro and used Everest at Home to look at the hardware  
>> sensors. It was reporting  
>> 2.00 volts and 2.05 volts respectfully for each CPU. So it seems as  
>> though it's not the BIOS reporting  
>> incorrect voltages unless Everest is pulling down the info from the  
>> BIOS??. I thought it would poll the  
>> Hardware sensor chip to get the info. Very confusing.  
>  
> Everest definitely gets it's data from the sensor chip, so this is very  
> mysterious. When you set 1.65v on both adapters, Everest reports close to  
> that, right?  
>

Yes that is what everest is reporting around 1.63 vots.

> Do you have a meter to confirm the CPUs are really getting 2.0v with the  
> 1.65/1.70 setting? Maybe the sensor chip is the problem – which one is it?  
> It's between the end of the ISA slot and the BIOS chip – I expect to see a  
> Winbond 83781D there. What revision is your P2B-DS? It must be at least

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- > 1.05 – and if it's one of the rare oddball 1.05s with mismatched
- > regulators, perhaps the answer lies there...
- >

\*I do have a meter but am leary of using it. I don't want to short out the test lead to an adjacent pin. Besides I am not sure which pin to check.

- > I think this is worth tracking down, because at this point I'm not sure
- > I'd trust anything but a meter to tell me what voltage the CPUs are really
- > getting, regardless of jumper settings.

>

- >> I was going to overclock these to 952Mhz by setting 112 Mhz FSB and up
- >> the voltages on the CPU's
- >> to 1.75Volts. Should be stable I think.

>

- > Most Coppermines will overclock at least 12% on default voltages. Don't
- > give 'em more juice until they prove their need :-)

>

Left at 1.65 volts system would lock up with 112Mhz selected through SoftFSB  
So I think I need a voltage boost.

>> Thanks for the input P2B. Much appreciated.

>> Any further questions please ask.

>

- > Your problems seem to be solved, so perhaps you'd prefer to move on – but
- > if you're interested in understanding anomalies encountered along the way,
- > the comprehensive list of useful information would be:

>

- > – Motherboard revision and PCBA level (the latter is a D0x number,
- > sometimes printed somewhere on the component side, but often only on a
- > sticker on the side of the last ISA connector – which requires a mirror to
- > read after the board is installed)

> – Regulator chip IDs (should be HIP6004xx[x] and HIP6019xx[x])

> – Sensor chip ID (see above)

> – CPU sSpecs (Sxxxx, printed on the CPUs)

> – Meter readings for Vcore when BIOS shows 2.0v, and again when it reads

> 1.6v

>

Motherboard is a Rev 1.06 PCBA Level D03 latest and greatest I heard!

Regulator chips: HIP6004BCB and HIP6019BCB

Sensor chip: ASUS AS97127F

CPU sSpecs: CPU 1 SL43H CPU 2 SL4CC

\*See answer above

- > I'm seriously considering ordering a pair of v1.1 Slot-Ts to play with,
- > and I have a few spare P3 933s I haven't gotten around to selling – maybe
- > I can reproduce the anomaly.

>

> P2B

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Again thanks for the input P2B. Hope that answers your questions. As before any further questions please ask.

Frank

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• *Follow-Ups:*

- ◆ *Re: P2B-DS and generic slotkets*  
◇ *From: P2B*

• *References:*

- ◆ *Re: P2B-DS and generic slotkets*  
◇ *From: Frank Galphin*
- ◆ *Re: P2B-DS and generic slotkets*  
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