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Writes API Example

For VXWORKS

Document Rev A
API Writes Example Rev 1.8
J.Thie 21-05-02

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The writes example is an example program that tests the PCI FIFO and HSB interface of a HERON carrier board. The example will try to boot a small and simple program onto the first processor (on the module in slot 1). This program will absorb a stream of data from the host, sent via the PCI interface. The host example program will send the stream of data and tell you if everything worked or not. It will also give a very rough estimate of the transfer speed.

(This example will **not** work with TIM-40 carrier boards such as the HEPC2E, HEPC3, HEPC4 or HECPCI1. It will also **not** work with the HEPC6, a one 'C6x processor board.)

Compiling, linking and running the example

Compiling/Linking the Example

To compile and link the example, please use the 'makefile' that is present in this directory. This makefile is set-up to use the GNU C/C++ 32-bit compiler. You can simply use the standard Tornado IDE, load 'vxwrites.c' and 'tiload.c', and do a 'Project → Make Current Source File' on both files. Next, open a DOX box, and change directory to the 'writes' example directory. Now run the 'app.bat' batch file. This will create the example executable 'writes.o'.

Running the example

To run the example, you need to load the API ('heapi.o') and the program itself ('writes.o').

```
ld<heapi.o
ld<writes.o
```

To run the example with an HEPC9 type:

```
sp Writes,"hep9a 0 a 1000 1000 10000"
```

You should see something like:

```
Start at 1000, inc 1000, end at 10000, BlockSize=250 on hep8a (0: Comporta)
Resetting...
Serial bus: slot 1: HERON4-C6201, rom version 5.
Resetting...
Host fifo 0 (out) connected to the ring, timeslot 0. [d/7/0/1]
Module 1 fifo 0 (in) connected to the ring, timeslot 0. [1/7/0/1]
Host fifo 0 (in) connected to the ring, timeslot 0. [9/7/0/1]
Module 1 fifo 0 (out) connected to the ring, timeslot 0. [5/7/0/1]
Booting writes4.out...
Testing...
Writes Transfer size 1000 DWORDS in 1 ticks, Speed: 3906.25 KBytes/sec
Writes Transfer size 2000 DWORDS in 1 ticks, Speed: 7812.50 KBytes/sec
Writes Transfer size 3000 DWORDS in 1 ticks, Speed: 11718.75 KBytes/sec
Writes Transfer size 4000 DWORDS in 1 ticks, Speed: 15625.00 KBytes/sec
Writes Transfer size 5000 DWORDS in 1 ticks, Speed: 19531.25 KBytes/sec
Writes Transfer size 6000 DWORDS in 1 ticks, Speed: 23437.50 KBytes/sec
Writes Transfer size 7000 DWORDS in 1 ticks, Speed: 27343.75 KBytes/sec
Writes Transfer size 8000 DWORDS in 1 ticks, Speed: 31250.00 KBytes/sec
Writes Transfer size 9000 DWORDS in 1 ticks, Speed: 35156.25 KBytes/sec
Writes Transfer size 10000 DWORDS in 1 ticks, Speed: 39062.5 KBytes/sec
Check whether any interrupts were used: read 1, write 1, master mode 0.
```

There will be some small differences between using HEPC9 and HEPC8 in output, as with the HEPC9 some HEART configuration messages will be displayed, and with the HEPC8 no such messages will be displayed (shown in *italic*).

If you have any other response than this, check that the red board switch is set to 0. If not, set it to zero, reboot, and retry. If the example still doesn't work, please first test if the 'testint' example works. If this example doesn't work as well, there is likely an interrupt problem or board mapping problem. With an HEPC8, also check the routing jumpers on the HERON module in slot 1. These jumpers need to be set to select 'FIFO 0' for both the 'in' and 'out' FIFO. Please refer to the 'Troubleshooting' section in the VXWORKS Installation & User Manual.

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