



HUNT ENGINEERING
Chestnut Court, Burton Row,
Brent Knoll, Somerset, TA9 4BP, UK
Tel: (+44) (0)1278 760188,
Fax: (+44) (0)1278 760199,
Email: sales@hunteng.demon.co.uk
<http://www.hunteng.co.uk>
<http://www.hunt-dsp.com>



For Sales and Support in North America Please Contact Our Strategic Partner:

Traquair Data Systems Inc, 114 Sheldon Road, Ithaca, NY 14850 USA

Tel 607 266 6000, Fax 607 266 8221

Email traquair@traquair.com, URL <http://www.traquair.com>

For Sales and Support in Other Areas Please Contact Your Local Reseller.

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Reads API Example

For VXWORKS

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THE READS EXAMPLE.....	4
COMPILING, LINKING AND RUNNING THE EXAMPLE.....	5
COMPILING/LINKING THE EXAMPLE	5
RUNNING THE EXAMPLE	5
TECHNICAL SUPPORT	6

The reads 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 send a stream of known data to the host via the PCI interface. The host example program will read back the stream of data, verify it, 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 'vxreads.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 'reads' example directory. Now run the 'app.bat' batch file. This will create the example executable 'reads.o'.

Running the example

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

```
ld<heapi.o
ld<reads.o
```

To run the example with an HEPC9 type:

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

You should see something like:

```
Start at 1000, inc 1000, end at 10000, BlockSize=250 on hep9a (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 reads4.out...
Testing...
Reads Transfer size 1000 DWORDS in 1 ticks, Speed: 3906.25 KBytes/sec
Reads Transfer size 2000 DWORDS in 1 ticks, Speed: 7812.50 KBytes/sec
Reads Transfer size 3000 DWORDS in 1 ticks, Speed: 11718.75 KBytes/sec
Reads Transfer size 4000 DWORDS in 1 ticks, Speed: 15625.00 KBytes/sec
Reads Transfer size 5000 DWORDS in 1 ticks, Speed: 19531.25 KBytes/sec
Reads Transfer size 6000 DWORDS in 1 ticks, Speed: 23437.50 KBytes/sec
Reads Transfer size 7000 DWORDS in 1 ticks, Speed: 27343.75 KBytes/sec
Reads Transfer size 8000 DWORDS in 1 ticks, Speed: 31250.00 KBytes/sec
Reads Transfer size 9000 DWORDS in 1 ticks, Speed: 35156.25 KBytes/sec
Reads Transfer size 10000 DWORDS in 1 ticks, Speed: 39062.50 KBytes/sec
Check whether any interrupts were used: read 1, write 0, 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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