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
URL: http://www.hunteng.co.uk

We are a committed member of the Texas Instruments 3rd party programme

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.

HUNT ENGINEERING

API Testint Example

Description and Reference

Document Rev A
API Testint Example Rev 1.0
J.Thie 05-03-01

COPYRIGHT

WARRANTIES LIABILITY and INDEMNITIES

HUNT ENGINEERING warrants the hardware to be free from defects in the material and workmanship for 12 months from the date of purchase. Product returned under the terms of the warranty must be returned carriage paid to the main offices of HUNT ENGINEERING situated at BRENT KNOLL Somerset UK, the product will be repaired or replaced at the discretion of HUNT ENGINEERING.

Exclusions - If HUNT ENGINEERING decides that there is any evidence of electrical or mechanical abuse to the hardware, then the customer shall have no recourse to HUNT ENGINEERING or its agents. In such circumstances HUNT ENGINEERING may at its discretion offer to repair the hardware and charge for that repair.

Limitations of Liability - HUNT ENGINEERING makes no warranty as to the fitness of the product for any particular purpose. In no event shall HUNT ENGINEERING'S liability related to the product exceed the purchase fee actually paid by you for the product. Neither HUNT ENGINEERING nor its suppliers shall in any event be liable for any indirect, consequential or financial damages caused by the delivery, use or performance of this product.

Because some states do not allow the exclusion or limitation of incidental or consequential damages or limitation on how long an implied warranty lasts, the above limitations may not apply to you.

TECHNICAL SUPPORT

Technical support for HUNT ENGINEERING products should first be obtained from the comprehensive Support section www.hunteng.co.uk/support/support.htm on the HUNT ENGINEERING web site. This includes FAQs, latest product, software and documentation updates etc. Or contact your local supplier - if you are unsure of details please refer to www.hunteng.co.uk for the list of current re-sellers.

HUNT ENGINEERING technical support can be contacted by emailing support@hunteng.demon.co.uk, calling the direct support telephone number +44 (0)1278 760775, or by calling the general number +44 (0)1278 760188 and choosing the technical support option.

TABLE OF CONTENTS

What does it do?

The testint example is a small example program that tests if the board's interrupts work as expected. The example will work with HERON module carrier boards, such as the HEPC8 and HEPC9.

Supported Operating Systems

The HUNT ENGINEERING API supports several different platforms. For each of the supported operating systems there is a sub-directory in which a document explains how to compile and link the example for that particular operating system. For example, in the win32 sub-directory you will find instructions how to compile and link the example using a 32-bit Microsoft Visual C/C++ or Borland C/C++ compiler.

Using one source code set for all the different operating systems shows the platform independence of the HUNT ENGINEERING API. There are some platform dependencies in the example code itself, though, as different include files may be needed, or some operating systems need an initialisation routine, etc.

Supported Boards

The HUNT ENGINEERING API supports all HUNT ENGINEERING carrier boards that implement the test interrupt feature. At the time of writing, only HERON carrier boards (such as the HEPC8 and HEPC9) support this feature. Therefore, the example will only work with HERON carrier boards.

Running the example

When running this example, possible output screens are:

```
Interrupts work fine.
Interrupt test failed.
Interrupts disabled.
Interrupt test failed, due to a driver problem.
```

If you have any other response than the first one ('Interrupts work fine.'), then you first need to resolve the interrupt problem. The HUNT ENGINEERING API won't work properly until interrupts work fine.

Devices

The HUNT ENGINEERING API works with a concept called ‘devices’. A carrier board has 1 or more devices. For example, the HEPC8 has a FIFO connecting the PCI interface to the first module on the board. This FIFO is one device (‘FIFOA’). The HEPC8 also has a serial bus interface. This is another device (‘HSB’). Finally, there is a JTAG interface, used (for example) by Code Composer Studio, called ‘JTAG’.

Different carrier boards may have different devices. For example, some boards may have more than 1 FIFO, and may support a device ‘FIFOB’. As another example, some carrier boards may have no serial bus interface. Typically there is always at least a ‘FIFOA’ device and a ‘JTAG’ device, but this is not a rule and you must not assume that a certain device exists on all carrier boards.

Open / Close

Before you can access a device, you must claim the device. Different devices must be claimed seperately. The ‘HeOpen’ and ‘HeOpen1’ calls are generic device open functions. The difference is that ‘HeOpen1’ expects a character string to identify the device you want to open, and ‘HeOpen1’ expects an integer identifier. A third open function is ‘HeOpenS’. This function is used to ‘hide’ operating system quirks. For example, in an operating system like VxWorks, the open function needs to know for ISA boards what interrupt and address to use. This information is can be transferred using ‘HeOpenS’, which takes an array of 32-bit specifiers as extra input parameter. Therefore, you would not usually need this function.

HeOpenS

The ‘testint’ example makes use of the ‘HeOpenS’ function. The ‘HeOpenS’ has an additional fifth parameter: a pointer to an array of undefined size. The array’s elements are HE_DWORDS, unsigned 32-bit entities. Each array entry is a specific parameter; the last entry in the array must **always** be ‘HE_Switch_Last’.

To trigger the HUNT ENGINEERING API to use the ‘test interrupt’ feature, use the ‘HeOpenS’ function with the first array entry set to ‘HE_Switch_TestInterrupt’. The function will open the ‘FIFOA’ device, then will then test interrupts. An interrupt is triggered by setting a register in the board’s interface. If interrupts work well, the interrupt routine of the HUNT ENGINEERING API will be called. This routine will set a parameter to indicate if the device driver’s interrupt handler is installed correctly. The ‘HeOpenS’ function will wait for at most 1 second for the interrupt handler to do its work. It will then read the parameter that the interrupt handler has set (if interrupts work) and reports the findings to you.

Technical support for HUNT ENGINEERING products should first be obtained from the comprehensive Support section www.hunteng.co.uk/support/support.htm on the HUNT ENGINEERING web site. This includes FAQs, latest product, software and documentation updates etc. Or contact your local supplier - if you are unsure of details please refer to www.hunteng.co.uk for the list of current re-sellers.

HUNT ENGINEERING technical support can be contacted by emailing support@hunteng.demon.co.uk, calling the direct support telephone number +44 (0)1278 760775, or by calling the general number +44 (0)1278 760188 and choosing the technical support option.