

TEST REPORT

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Subject: This report summarizes performed tests to capture the delay issue of the QNX system interrupt, this causes disappearance of our interrupt. All tests are done with: • PCI-7032 CPU board • APIC mode • Advantech BSP "qnx651_pci7032_release_v1.0.20170526.img.7z" • Advantech image "ifs-smpinstr-apic.bin" • Newport "ISRConfiguration_Simplified" application		
Files: Link to tests files		

Conclusion

Tests in this report show that interrupt issue is not caused by our interrupt number setting but it is due to the interrupt delay that exceeds the timeout of our PCI device.

The BSP "Advantech BSP "qnx651_pci7032_release_v1.0.20170526.img.7z" provided by Advantech doesn't fix the issue of the QNX system interrupt delay. This causes the delay then the stop of our interrupts.

We need Advantech support to identify the origin of this issue on the PCI-7032 CPU board and fix it.

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Introduction

This report summarizes performed tests to capture the delay issue of the QNX system interrupt, this causes disappearance of our interrupt.

All tests are done with:

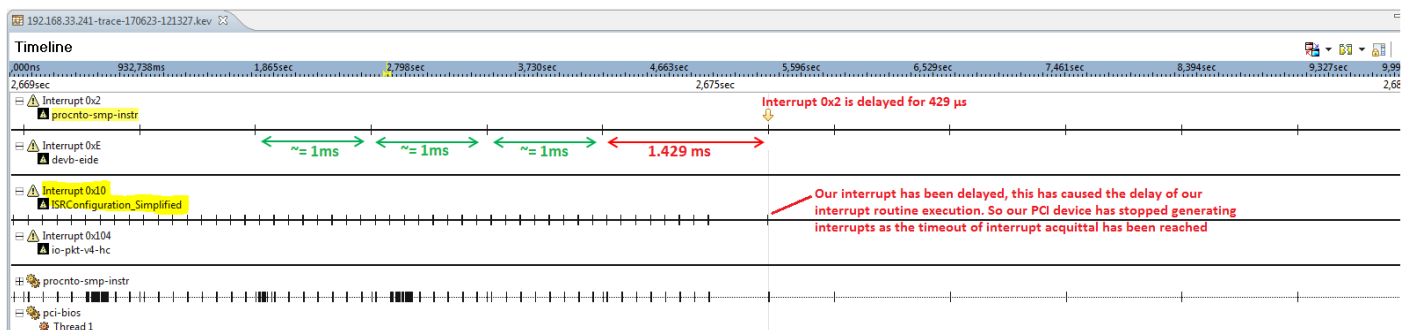
- PCI-7032 CPU board
- APIC mode
- Advantech BSP "qnx651_pci7032_release_v1.0.20170526.img.7z"
- Advantech image "ifs-smpinstr-apic.bin"
- Newport "ISRConfiguration_Simplified" application

Test

Test N° 1: Setting the period of our interrupt to 125e-6 seconds

125e-6 seconds is the nominal value of our interrupt period. It must be acquitted periodically from the interrupt routine implemented in our application, in case this is not done within a timeout of 125 µs our PCI board stops generating interrupts.

I have captured the QNX interrupt delay issue below:



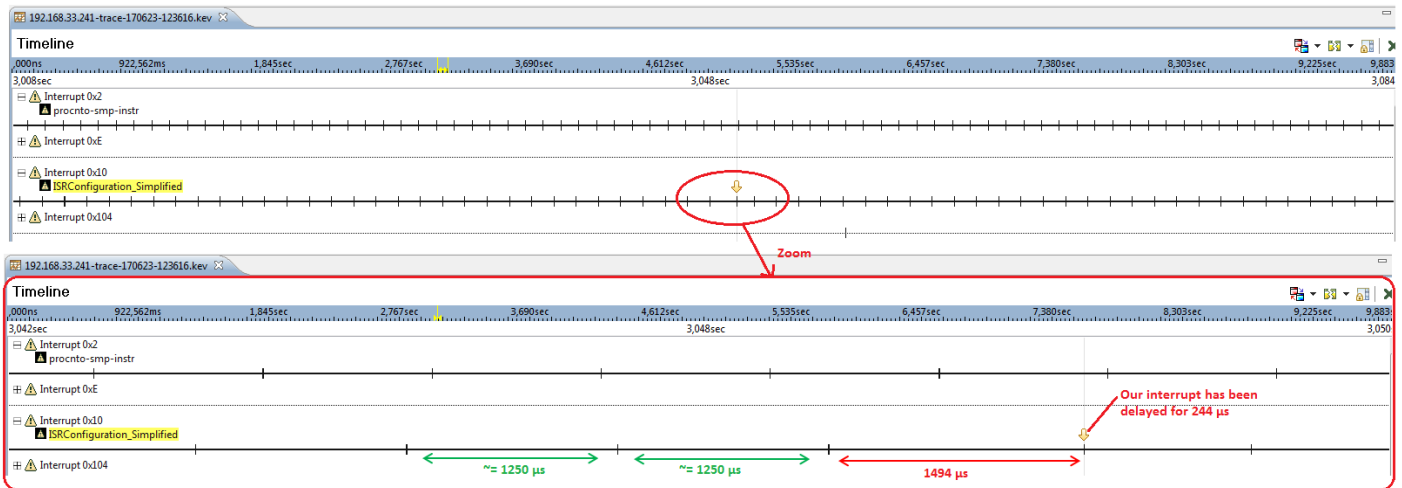
Our interrupt 0x10 has been delayed for 388 µs, this value exceeds the timeout value of our PCI device (125 µs), so the PCI device has stopped generating interrupts.

The test in the next page, the interrupt period is set to 1250 µs.

Test N° 2: Setting the period of our interrupt to 1250e-6 seconds

I have set our interruption period to 1250 e-6 seconds, so the timeout of our PCI device is 1250 e-6 seconds.

The capture below shows that our PCI device has continued generating interrupts even if our interrupt has been delayed, because the delay of 244 μ s is less than the timeout of the PCI device (1250 μ s):



This test confirms that our interrupt issue is not caused by our interrupt number setting but it is due to the interrupt delay that exceeds the timeout of our PCI device.

The BSP "Advantech BSP "qnx651_pci7032_release_v1.0.20170526.img.7z" provided by Advantech doesn't fix the issue of the QNX system interrupt delay. This causes the delay then the stop of our interrupts.