

intel RN-OCL004 FPGA SDK for OpenCL Pro Edition User Guide

[Home](#) » [Intel](#) » intel RN-OCL004 FPGA SDK for OpenCL Pro Edition User Guide 

intel RN-OCL004 FPGA SDK for OpenCL Pro Edition

intel Intel® FPGA SDK for OpenCL™ Pro Edition

Contents

- [1 Intel® FPGA SDK for OpenCL™ Pro Edition Version 22.4 Release Notes](#)
 - [1.1 New Features and Enhancements](#)
 - [1.2 Operating System Support](#)
 - [1.3 Changes to Software Behavior](#)
 - [1.4 Known Issues and Workarounds](#)
 - [1.5 Software Issues Resolved](#)
 - [1.6 Software Patches Included in this Release](#)
 - [1.7 Intel FPGA SDK for OpenCL Pro Edition Release Notes Archives](#)
 - [1.8 Document Revision History of the Intel FPGA SDK for OpenCL Pro Edition Release Notes](#)
- [2 Documents / Resources](#)
 - [2.1 References](#)
- [3 Related Posts](#)

Intel® FPGA SDK for OpenCL™ Pro Edition Version 22.4 Release Notes

The Intel® FPGA SDK for OpenCL™ Pro Edition Release Notes provides late-breaking information about the Intel FPGA Software Development Kit (SDK) for OpenCL(1)(2) Pro Edition and the Intel FPGA Runtime Environment (RTE) for OpenCL Pro Edition Version 22.4.

New Features and Enhancements

No new features added in this release of the Intel FPGA SDK for OpenCL Pro Edition and the Intel FPGA RTE for OpenCL Pro Edition.

Operating System Support

Information about OS support for the Intel FPGA SDK for OpenCL is available on the Operating System Support page of the Intel FPGA website.

Related Information

Operating System Support

Changes to Software Behavior

No changes to the software behavior were made in the current release of the Intel FPGA SDK for OpenCL and the Intel FPGA RTE for OpenCL.

Related Information

OpenCL 2.0 Headers

Known Issues and Workarounds

This section provides information about known issues that affect the Intel FPGA SDK for OpenCL and the Intel FPGA RTE for OpenCL Version 22.4.

1. OpenCL and the OpenCL logo are trademarks of Apple Inc. used by permission of the Khronos Group™.
2. The Intel FPGA SDK for OpenCL is based on a published Khronos Specification, and has passed the Khronos Conformance Testing Process. Current conformance status can be found at www.khronos.org/conformance.

Description	Workaround
<p>When compiling an OpenCL kernel containing calls to library functions containing HLS tasks, incremental compile may trigger recompilation for unaffected kernels.</p>	<p>No known workaround. However, this is not a functional bug. It may result in a more conservative incremental compile.</p>
<p>The emulator runtime emits an assertion error if a kernel is enqueued 16,000 times.</p>	<p>Do not enqueue a kernel more than 16,000 times.</p>
<p>OpenCL kernels with names longer than 61 characters might fail in the Intel Quartus® Prime Pro Edition compiler with an error similar to the following error:</p>	<p>Reduce the size of the OpenCL kernel name.</p>
<pre>Error (16045): Instance "... <long_kernel_name>_cra_slave_inst" instantiates undefined entity "<long_kernel_name>_function_cra_slave" File: <filename> Line: <linenumber></pre>	
<p>OpenCL kernel pipes cannot be passed as arguments in some cases. The symptom is the runtime receives a <code>CL_INVALID_BUFFER_SIZE</code> (-61) error when you enqueue your kernel.</p>	<p>Modify your design to use channels instead of pipes.</p>
<p>When alternatively using sub-buffers and their parent buffers, changes written to one might not be reflected in the other.</p>	<p>Unmapping and mapping a buffer forces the sub-buffers and their parent buffers to be synced. Unmapping and mapping a buffer between buffer uses should prevent this issue.</p>

This section provides information about known issues that affect the current release of the Intel FPGA SDK for OpenCL Custom Platform Toolkit and Reference Platforms. These issues might also affect Custom Platforms you create for use with the Intel FPGA SDK for OpenCL.

Description	Workaround
<p>For Windows, when the host application queries the number of devices, calls to <code>clGetDeviceIDs</code> return 128 devices regardless of the actual number of devices present.</p> <p><i>Note:</i> You can find the actual available devices at the beginning of the device list returned by <code>clGetDeviceIDs</code>.</p>	<p>Perform one of the following workarounds:</p> <ul style="list-style-type: none"> • Rewrite the host application to limit the query for <code>clGetDeviceIDs</code> to the actual number of devices. • Rewrite the host application to use <code>clGetDeviceInfo</code> to query which devices are available. Calling <code>clGetDeviceInfo</code> with the <code>CL_DEVICE_AVAILABLE</code> flag correctly reports that extraneous devices are unavailable. • Rewrite the host application to only call <code>clCreateContext</code> with the actual number of devices. Calling <code>clCreateContext</code> with extraneous devices fails with the error <code>CL_DEVICE_NOT_AVAILABLE</code>. • Set the environment variable <code>CL_OVERRIDE_NUM_DEVICES_INTELFPGA</code> to the correct number of devices. Doing so fixes the erroneous behavior of <code>clGetDeviceIDs</code>.

Latest Known Intel FPGA SDK for OpenCL Software Issues

For additional known issue information for the current Intel FPGA SDK for OpenCL version and for previous versions, refer to the Knowledge Base web page.

Related Information

Knowledge Base

Software Issues Resolved

No software issues were reported, corrected or otherwise resolved in the Intel FPGA SDK for OpenCL and the Intel FPGA RTE for OpenCL Version 22.4.

Software Patches Included in this Release

No software patches included in this release.

Intel FPGA SDK for OpenCL Pro Edition Release Notes Archives

For the latest and previous versions of this release notes, refer to [Intel FPGA SDK for OpenCL Pro Edition Release Notes](#). If a software version is not listed, the guide for the previous software version applies.

Document Revision History of the Intel FPGA SDK for OpenCL Pro Edition Release Notes

Document Version	Intel Quartus Prime Version	Changes
2022.12.19	22.4	Initial release.



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References

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- [intel Product Discontinuance Notification](#)
- [intel A.3.1. OpenCL 2.0 Headers](#)
- [intel FPGA Knowledge Base Articles Search](#)
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