

Getting Started with the Intel® Parallel Composer

The Intel® Parallel Composer is a software development product that enables you to express parallelism in your applications. It lets you build and optimize C and C++ source files on Windows* operating systems from within the Microsoft Visual Studio* integrated development environment (IDE), on the IA-32 and Intel® 64 architectures.

The Intel® Parallel Composer includes the following components:

- Intel® C++ Compiler
- Intel® Threading Building Blocks
- Intel® Integrated Performance Primitives
- Intel® Parallel Debugger Extension

Contents

Disclaimer and Legal Information	2
1 Start the Intel® Parallel Composer	3
2 Build an Intel® C++ Project	3
3 Use Intel® Performance Libraries	3
4 Debug Your Code Using Intel® Parallel Debugger Extension	5
5 Next Steps	6



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1 Start the Intel® Parallel Composer

The Intel® Parallel Composer integrates into the following versions of the Microsoft Visual Studio* IDE:

- Microsoft Visual Studio 2008*
- Microsoft Visual Studio 2005*

Launch Visual Studio, and perform the following steps:

1. Open, or create, a Visual C++ project
2. Select the project in the **Solution Explorer** pane
3. From the **Project** menu, or project context menu, select **Intel Parallel Composer -> Use Intel C++**

Click [Show Me](#) for a video demonstration on how to start using Intel® Parallel Composer.

NOTE: Show Me video demonstrations require Adobe* Flash* Player. For more information, see <http://www.adobe.com/products/flashplayer/>.

2 Build an Intel® C++ Project

After selecting the Intel® C++ compiler for your project(s), you can build Intel C++ projects the same way you build Visual C++* projects.

1. Select your **Intel C++ project** in the Solution Explorer.
2. Select **Build Solution** from the Visual Studio **Build** menu.

The results of the compilation are displayed in the **Output** window.

See the Intel® Parallel Composer online help for more information on building applications.

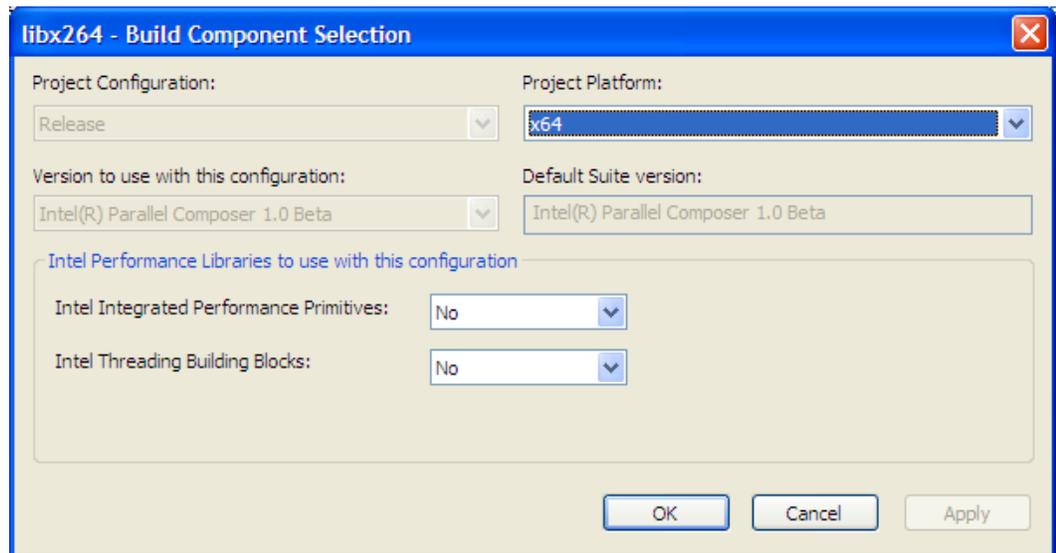
3 Use Intel® Performance Libraries

To use the Intel® C++ project with the Intel® Integrated Performance Primitives or the Intel® Threading Building Blocks, do the following:



1. Open your project in the Solution Explorer.
2. On the menu bar, select **Project > Intel Parallel Composer > Build Component Selection**.

The **Build Component Selection** dialog box opens.



The dialog box allows you to enable one or both of the Intel Performance Libraries.

3. Select one of the following options from the **Intel Integrated Performance Primitives** pull-down menu:
 - **Common:** Enables using the basic Intel® IPP (for Signal Processing, Image Processing, Small Matrices, Realistic Rendering and 3d Data Processing).
 - **Crypto:** Enable using the basic Intel® IPP upgraded with the Cryptography functionality.
 - **No:** Default. Disables using Intel® IPP.
4. Select one of the following options from the **Intel Threading Building Blocks** pull-down menu:
 - **Yes:** Enables using Intel® TBB.
 - **No:** Disables using Intel® TBB.
5. Click **OK**.

Once you click **OK** or **Apply** in the **Intel Build Components Selection** dialog box, the appropriate Intel® IPP and Intel® TBB include paths and link libraries for the selected architecture will be added to the project property settings as follows:

- **C/C++ > General > Additional Include Directories**
- **Linker > Additional Library Directories**
- **Linker > Input > Additional Dependencies.**



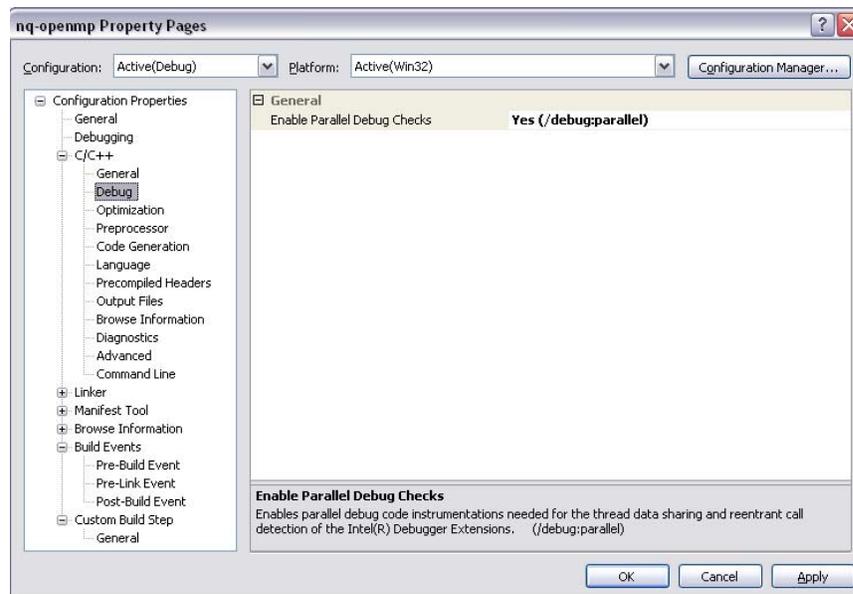
4 Debug Your Code Using Intel® Parallel Debugger Extension

After you first installed the Intel® Parallel Composer on Microsoft Visual Studio* 2005, ensure the Intel® Parallel Debugger Exceptions are enabled in the Visual Studio* Debugger. Do the following:

1. From the **Debug** pulldown menu select **Exceptions...**
2. Ensure that in the Win32 **Exceptions** treeview list the box for **Intel Parallel Debugger Extension Exception** is enabled.
3. Go to the **File** pulldown menu and select **Save all**.

To experiment with the Intel® Parallel Debugger Extension, you can build and load the NQueens example (for example, nq-openmp, nq-openmp-taskq, nq-parexp). See [Locate the Samples](#) for information on finding the samples.

1. Open the NQueens solution
2. Enable debug information generation as well as parallel debug checks with the Intel compiler by setting the options `/ZI` and `/debug:parallel`:



3. Launch the debug session.



5 Next Steps

This guide focuses on basic Intel® Parallel Composer features. To explore more features, check the following resources.

5.1 Locate the Samples

The N-Queens samples illustrating use of parallelism are located at:

```
<install-dir>\Samples\en_US\C++\NQueens\
```

The document, *Parallelizing N-Queens with the Intel® Parallel Composer Sample Code Guide*, is also located in this directory. This guide makes frequent reference to the samples and describes how to use Intel® Parallel Composer to implement parallel solutions to the N-Queens problem.

The product ships with a number of other samples, which can be found at:

```
<install-dir>\Samples\en_US\C++\
```

The samples illustrate specific Intel® Parallel Composer optimizations, features, tools, and programming concepts. The file `samples.htm` provides an overview of the samples.

Samples that illustrate use of Intel® Threading Building Blocks are located at:

```
<install-dir>\tbb\examples
```

This folder contains a file called `index.htm`, which provides an overview of the samples.



5.2 Locate the Documentation

The Intel® Parallel Composer usage and reference documentation is supplied in two ways:

- User and reference help integrated into Microsoft Document Explorer
- Additional documentation not integrated into Microsoft Document Explorer

5.2.1 Integrated User and Reference Help

The Microsoft Document Explorer allows you to filter help content. You can filter the contents and index information; select **Intel** from the **Filtered by** drop-down list to view only the Intel® Parallel Composer documentation.

The Intel® Parallel Composer documentation does not support full-text search filters. In the **Search** pane, the available categories (Language, Technology, and Content Type) must be set to **All** to result in successful matches.

5.2.2 Additional Documentation

Additional documentation is located in the <install-dir>\Documentation\en_US\ directory. You can find additional documentation for the following:

- [Intel\(R\) C++ Compiler](#)
- [Intel\(R\) Threading Building Blocks](#)
- [Intel\(R\) Integrated Performance Primitives](#)
- [Intel\(R\) Parallel Debugger Extension](#)
- [Release Notes](#)

NOTE: The Release Notes contain system requirements and information about installing the Intel® Parallel Composer.



5.3 Find Product Information and Technical Support

To access technical support articles and other useful product information, refer to the following: <http://software.intel.com/en-us/articles/intel-parallel-studio>.

For general product information on support for Intel software products, visit the Intel web site: <http://developer.intel.com/software/products/>. At this site, you will find comprehensive product information, including:

- Links to each product web site containing technical information, such as white papers and articles
- Links to user forums
- Links to news and events

To find technical support information, to register your product, or to contact Intel, please visit: <http://www.intel.com/software/products/support>. For additional information, see the Technical Support section of your Release Notes.

See the registration web site for licensing and registration guidance: <https://registrationcenter.intel.com/>.