Intel® Integrated Performance Primitives
(Intel® IPP) 2018 Release Notes
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Overview
This document provides a general summary of new features and important notes about the Intel® Integrated Performance Primitives (Intel® IPP) library software product.

Please see the following resources available online for the latest information regarding the Intel® Integrated Performance Primitives (Intel® IPP):

- Intel® IPP Main Product Page
- Intel® IPP Installation Guide
- Intel® IPP 2018 System Requirements

Please register your product using your preferred email address. This helps Intel recognize you as a valued customer in the support forum and insures that you will be notified of product updates. You can read Intel Privacy Policy if you have any questions regarding the use of your email address for software product registration.

What's New in Intel® IPP 2018

- Added new functions to support the LZ4 data compression and decompression. This release also introduces the patch files for LZ4 source to provide drop-in optimization with the Intel® IPP functions.

- Introduced the standalone cryptography packages. The cryptography functions no longer depend on the main Intel® IPP packages, and can be used without the main Intel® IPP packages.

- Introduced the optimization code for the GraphicsMagick source. The code can provide drop-in optimization on GraphicsMagick with the Intel® IPP functions:
  - The code supports GraphicsMagick version 1.3.25, and provides optimization for the following GraphicsMagick APIs: ResizeImage, ScaleImage, GaussianBlurImage, FlipImage, and FlopImage.
  - The optimization code can improve the APIs performance by up to 4x, depending on the functionality, input parameters, and processors.

- Made the Integration Wrappers APIs part of the Intel® IPP packages.

- Computer Vision:
  - Added the 64-bit data length support to Canny edge detection functions (ippiCanny_32f8u_C1R_L).

- Color Conversion:
- Added the `ippiDemosaicVNG` functions that support the demosaicing algorithm with VNG interpolation.

- **Cryptography:**
  - Added the Elliptic Curves key generation and Elliptic Curves based Diffie-Hellman shared secret functionality.
  - Added the Elliptic Curves sign generation and verification functionalities for the DSA, NR, and SM2 algorithms.

- **Performance:**
  - Extended optimization for the Intel® Advanced Vector Extensions 512 (Intel® AVX-512) and Intel® Advanced Vector Extensions 2 (Intel® AVX2) instruction sets.
  - Improved performance of LZO data compression functions on Intel® AVX2 and Intel® Streaming SIMD Extensions 4.2 (Intel® SSE4.2).

- **Other Changes:**
  - Removed support for Intel® Pentium® III processor. The minimal supported instruction set is Intel® Streaming SIMD Extensions 2 (Intel® SSE2).
  - Removed support for the Intel® Xeon Phi™ x100 product family coprocessor (formerly code name Knights Corner) in this release.
    - The Intel® Xeon Phi™ x100 product family coprocessor (formerly code named Knights Corner) was officially announced end of life in January 2017. As part of the end of life process, the support for this family will only be available in the Intel® Parallel Studio XE 2017 version. Intel® Parallel Studio XE 2017 will be supported for a period of 3 years ending in January 2020 for the Intel® Xeon Phi™ x100 product family. Support will be provided for those customers with active support.

- **Threading Notes:**

  To support the internal threading in the Intel® IPP functions, Intel® IPP provides the Threading Layer APIs in the platform-aware functions. These APIs can support both 64-bit object sizes (for large size images and signal data) and internal threading in Intel® IPP functions. Check the “Threading Layer Functions” pat in the Intel® IPP Developer Reference to get more information on these APIs. Your feedback on extending the new threading functions is welcome.

  The legacy Intel IPP threaded libraries are available by the custom installation, and the code written with these libraries will still work as before. However, the threaded library will not expand its threading functions, and the new threading will be developed only in the new Intel® IPP threading layer APIs. User's application is
recommended to use the new Intel® IPP threading layer APIs or implement the external threading in their applications.

Known Issues and Limitations

- The release only provides optimization on Intel® SSE4.2 and later instructions for the morphology image processing functions. Users may notice performance degradation in those functions on some old processors. If the old instructions optimization for the morphology functions is important for your applications, please submit your feedback through the product support.

System Requirements

For information about the Intel® IPP system requirements, please visit Intel® Integrated Performance Primitives (Intel® IPP) 2018 System Requirements page.

Intel® IPP 2018 Documentation

Starting with this version of Intel IPP, most of the documentation is only available online at Intel® Software Documentation Library. You can also download it from the Intel® Software Development Products Registration Center > Product List > Intel® Parallel Studio XE(or Intel® System Studio) Documentation.

Product Contents

The Intel® IPP for Windows*, Linux* OS, and OS X* is provided as part of the Intel® Parallel Studio XE and Intel® System Studio product. It is also available from the free Intel® performance libraries program:

- Installation package only supports 64-bit host system. It includes both the 64-bit and 32-bit target libraries.
- Installation package also provides the online installer that downloads materials chosen during installation

Intel® IPP Cryptography is provided as the following optional packages:

- Intel® IPP Cryptography for Windows*
- Intel® IPP Cryptography for Linux* OS
- Intel® IPP Cryptography for OS X*
**Intel® IPP Cryptography**

Intel® IPP Cryptography is a separate installation package that contains the binaries and header files needed to utilize the functions contained in the Intel IPP cryptography domain. Intel® IPP 2018 removed the cryptography code dependency on the main package, and the cryptography functions are provided as the standalone packages. To obtain the Intel IPP Cryptography libraries, please review the knowledge base article: [where do I download the Intel® IPP cryptography libraries](https://software.intel.com/en-us/intel-ipp-support/).

**Technical Support**

If you did not register your Intel® software product during installation, please do so now at the [Intel® Software Development Products Registration Center](https://software.intel.com/en-us/intel-ipp-support/). Registration entitles you to free technical support, product updates and upgrades for the duration of the support term.


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  zlib.h -- interface of the ‘zlib' general purpose compression library version 1.2.8, April 28th, 2013  
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Jean-loup Gailly Mark Adler
jloup@gzip.org madler@alumni.caltech.edu

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