

# *Intel® Integrated Performance Primitives v6.0 for Linux\* OS*

## *Release Notes*

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### **Overview**

The Intel® Integrated Performance Primitives (Intel® IPP) 6.0 for Linux\* OS contains 4 separate install packages.

- Intel® IPP for Linux\* OS on IA-32 Intel® Architecture
- Intel® IPP for Linux\* OS on Intel® Itanium® Architecture
- Intel® IPP for Linux\* OS on Intel® 64 (Intel® EM64T) architecture
- Intel® IPP for Linux\* OS on Intel® Atom™ Processor

This Release Notes file refers to the Intel® IPP 6.0 for Linux\* OS.

Intel® Integrated Performance Primitives (Intel IPP) is a software library which provides a broad range of functionality including general signal, image, speech, graphics, data compression, cryptography, text strings and audio processing, vector manipulation and matrix math, as well as more sophisticated primitives for construction of audio, video and speech codecs such as MP3 (MPEG-1 Audio, Layer 3), MPEG-4, H.264, VC-1, H.263, JPEG, JPEG2000, GSM-AMR\* and G.729, plus computer vision. By supporting a variety of data types and layouts for each function and minimizing the number of data structures used, the Intel IPP library delivers a rich set of options for developers to choose from while designing and optimizing an application.

The Intel IPP application programming interface (API) is a cross-platform, low-level software interface that abstracts multimedia and signal processing functionality from the processor underneath. This allows transparent use of recent Intel® architecture enhancements such as Intel® Core™2 Quad and Intel® Core™ 2 Duo Microarchitectures, Intel® 64 Technology (Intel® EM64T), Streaming SIMD Extensions (SSE), SSE2, SSE3, SSSE3, SSE4.1, MMX™ technology, and Intel XScale® technology. Intel IPP is optimized for the broad range of Intel® microprocessors: Intel® Atom™ Processor, Intel® Core™2 Quad processors, Intel® Core™ 2 Duo Processors, Intel® Xeon® processors, Intel® Pentium® 4 processor, the Intel® Itanium® 2 processor and Intel® IXP4XX Network Processors. With a single API across the range of architectures,

application developers can have platform compatibility and reduced cost of development. Using Intel IPP, you can simplify integration of basic functions and focus more of your time and efforts on building the value-add functionality that will differentiate your product in the market.

### Processor Terminology

Intel IPP supports 4 platforms: general combinations of processor and operating system type. This section explains the terms that Intel uses to describe the platforms in its documentation, installation procedures and product web site.

**IA-32:** Any systems based on 32-bit processors generally compatible with the Intel Pentium® processor, (for example, Intel® Core™2 Duo, Intel® Core™, Pentium® 4, Pentium® D, Centrino®, Celeron® or Intel® Xeon®), or processors from other manufacturers supporting the same instruction set, running a 32-bit operating system.

**Intel® 64** (Intel® Extended Memory 64 Technology): any systems based on IA-32 processors which have 64-bit architectural extensions, (for example, Quad-Core Intel® Xeon® Processor and Intel® Core™2 Duo processor), running a 64-bit operating system such as Microsoft\* Windows\* XP Professional x64 Edition or Microsoft Windows Server 2003 x64 Edition.

**Intel Itanium®** :any systems based on the Intel Itanium® 2 processor running a 64-bit operating system.

**Intel® Atom™ Processors:** any systems based on Intel Atom processor , it will enable the industry to design new Mobile Internet Devices (MIDs) and affordable Internet-focused notebooks (netbooks) and desktops (nettops). This new processor also serves as the foundation for the all new Intel® Centrino® Atom™ processor technology

### New in Intel® IPP 6.0

- - Expanded Optimizations in latest Intel Micro-architecture
    - Intel® Atom™ Processor support
    - Intel® Core™ i7 processor support
- High-level Data Compression library Support Izo and new continued performance improvement for zlib, gzip, bzip2 algorithms.
- New Deferred Mode Image Processing (DMIP) Layer is introduced as a [sample](#) on top of Intel IPP libraries, it provides solutions on pipelined image operations for larger images, utilizes in memory optimization and improves performance on multi-threading environment.
- New Unified Image Codec (UIC) frameworks implementation to standardize the interfaces as plug-and-play of various image codecs (JPEG, JPEG2000,etc), it is introduced via [sample](#) implementation.
- Threaded Static Libraries are added to cover all functional domains ( in directory .\lib\\*\_t.lib)
- New Functional Domains
  - Data Integrity Functions based on operations over finite fields for error-

- correcting coding, support Reed-Solomon Algorithm (ippDi)
  - Generated domain/functionality for Spiral (ippGen)
- New functions in existing domains, check "*NewFunctionsList.txt*" in directory \doc for more details :
  - New 3D Image Processing functions - 3D geometry, filtering, remap, etc (ippRR)
  - New Video coding functions for Video Enhancement on Denoising / Deinterlasing / Demosaicing
  - New function implementation in Image Processing domain ippiCopy\* and ippiTranspose\* functions
  - New Speech Coding functions to support Microsoft\* RT Audio, G722.1C (SIREN14), Noise suppressor, Acoustic Gain and Level Control
- New features and enhancement in Intel IPP samples, download completed samples from [Intel IPP Sample Website](#)
  - New Video AVS Codec Support for both Decoding and Encoding (UMC Sample)
  - ALS Decoder Profile support in AAC Decoding
  - Speech Coding Feature enhancement (USC sample)
    - Microsoft RT Audio support via USC RTA codec support
    - ITU G722.1 Annex C support (a.k.a. super-wideband SIREN14 codec)
    - RFC 3047, RFC 3351, RFC 4352, RFC 4749, RFC 4867 voice RTP payloads support
    - Acoustic Noise Suppressor support
    - Acoustic Gain and Level Control support
    - G.728J codec 40kbps support
- New Document User's Guide for Intel 64 architecture is added, please check this "*userguide\_win\_ia64.pdf*" in directory \doc
- Internationalization is supported. Intel IPP returns statuses in local languages.
- Other Changes from Intel IPP v5.3 to v6.0
  - The default OpenMP runtime library for Intel IPP has been changed from libguide to libiomp. See the User Guide in the doc directory for more information
  - The Optimized libraries for Intel® Pentium III processors (a6) are removed. Check "*ippstart.htm*" for current support Optimized CPUs in Intel IPP
  - The Intel IPP on Intel® IXP4XX Network Processors package is removed. Check more details on Intel IPP Web site.

## System Requirements

### Requirements to Develop IA-32 Applications:

#### Hardware

- IA-32 Intel Architecture processors, and software-compatible processors, including software-compatible AMD\* processors
- 800 MB of free hard disk space, plus an additional 800 MB during installation for download and temporary files.

## Software

- Linux system with glibc 2.2.4, 2.2.5, 2.2.93, 2.3.2 or 2.3.3 and the 2.4.X or 2.6.X Linux kernel as represented by the following distributions. **Note:** Not all distributions listed are validated and not all distributions are listed.
  - Red Hat Enterprise Linux\* OS 2.1, 3, or 4
  - SUSE\* Linux 8.2, 9.1
  - SUSE Linux Enterprise Server\* 8 or 9
  - Debian\* 4.0r1
  - Ubuntu\* 7.10
  - Asianux\* Server 3.0
  - Red Flag\* 5.0
- Supported C compilers (Intel IPP has been tested with the following):
  - Intel® C++ Compiler version 10.1 and 11.0 for Linux\* OS for IA-32 processors
  - Linux Developer tools component installed, including gcc, g++ and related tools.

## Requirements to Develop Intel 64 based Applications:

### Hardware

- A PC, workstation or server, with an Intel® Xeon® processor with Streaming SIMD Extensions 3 (SSE3) and Intel® EM64T or an Intel® Pentium® D processor and software-compatible processors, including software-compatible AMD\* processors
- 600 MB of free hard disk space, plus an additional 600 MB during installation for download and temporary files.

### Software

- Linux system with glibc 2.2.4, 2.2.5, 2.2.93, 2.3.2 or 2.3.3 and the 2.4.X or 2.6.X Linux kernel as represented by the following distributions. **Note:** Not all distributions listed are validated and not all distributions are listed.
  - Red Hat Enterprise Linux\* OS 3 or 4
  - SUSE Linux Enterprise Server\* 9

- Debian\* 4.0r1
- Ubuntu\* 7.10
- Asianux\* Server 3.0
- Red Flag\* 5.0
- Supported C compilers (Intel IPP has been tested with the following):
  - Intel® C++ Compiler version 10.1 and 11.0 for Linux \* for processors with Intel 64 architecture
  - Linux Developer tools component installed, including gcc, g++ and related tools.

## **Requirements to Develop Intel Itanium based Applications :**

### **Hardware**

- A PC, workstation or server, with an Intel® Itanium® 2 processor
- 600 MB of free hard disk space, plus an additional 600 MB during installation for download and temporary files.

### **Software**

- Linux system with glibc 2.2.4, 2.2.5, 2.2.93, 2.3.2 or 2.3.3 and the 2.4.X or 2.6.X Linux kernel as represented by the following distributions. Note: Not all distributions listed are validated and not all distributions are listed.
  - Red Hat Enterprise Linux\* OS 2.1, 3, or 4
  - SUSE Linux Enterprise Server\* 8 or 9
  - Debian\* 4.0r1
  - Ubuntu\* 7.10
  - Asianux\* Server 3.0
  - Red Flag\* 5.0
- Supported C compilers (Intel IPP has been tested with the following):
  - Intel® C++ Compiler version 10.1 and 11.0 for Linux \* for IA-32 processors
  - Linux Developer tools component installed, including gcc, g++ and related tools.

## **Requirements to Develop Intel® Atom™ Processor based Applications:**

### **Hardware**

- IA-32 Intel Architecture processors, and software-compatible processors, including software-compatible AMD\* processors
- a PC, workstation or server, with Low Power Intel Architecture processors

- 1200 MB of free hard disk space, plus an additional 340 MB during installation for download and temporary files.

## Software

- Linux system with glibc 2.2.4, 2.2.5, 2.2.93, 2.3.2 or 2.3.3 and the 2.4.X or 2.6.X Linux kernel as represented by the following distributions. **Note:** Not all distributions listed are validated and not all distributions are listed.
  - Ubuntu\* 7.10
  - Red Flag\* 5.0
- Supported C compilers (Intel IPP has been tested with the following):
  - Intel® C++ Compiler version 9.1 , 10.0, 10.1 for Linux\* OS for IA-32 processors
  - Linux Developer tools component installed, including gcc, g++ and related tools.

Recommended documentation viewer: Adobe\* Acrobat\* Reader version 7.0 or later (provides better keyword search capabilities for viewing documentation in PDF format)

## Installation

Guidance on the installation of Intel IPP is provided at install time. Links will be provided to a file with step by step instructions (filename: Install.htm). This file can also be found in the \doc directory. Please see the separate "Installation Guide" for Intel IPP installation.

The default installation directory is:

/opt/intel/ipp/6.0.x.xxx/ia32 ( IA-32 based system)

/opt/intel/ipp/6.0.x.xxx/em64t (Intel 64 based system)

/opt/intel/ipp/6.0.x.xxx/itanium (Intel Itanium based system)

/opt/intel/ipp/6.0.x.xxx/lp32 (Intel Atom Processor based system)

## Documentation

The Documentation Index (ipp\_documentation.htm in the doc directory) has a list of the principal IPP documents. Intel IPP Reference Manuals are also available at: <http://www3.intel.com/cd/software/products/asmo-na/eng/346532.htm>

## Resources for Addition Information

- For the latest product support information and errata, please visit [Intel IPP Support Website](#).
- Extensive Intel IPP samples have been created to help demonstrate the use of Intel IPP and to help accelerate the development of your application, components, and audio/video/image/speech codecs. More information can be found at the [Intel® IPP Sample Website](#).

- To get started using the library and to find information on building options, please refer to the Getting Started document included in this release.
- Cryptography for Intel IPP requires additional registration to download, please click [<Cryptography Download>](#) from [Intel IPP Website](#) for details.

## Technical Support and Feedback

### Self Help and User Forums

A rich repository of self-help product information such as getting started tips, known product issues, product errata, compatibility information and answers to frequently asked questions can be found at the [Intel IPP Technical Support site](#). It's a great place to find answers quickly or to gain insight in using our products effectively.

The [Intel IPP User Forum](#) is the place to ask questions of and share information with other users of Intel® IPP.

### Submitting Issues

Your feedback is very important to us. To receive technical support for the tools provided in this product, technical information including FAQ's and product updates, you need to be registered at <https://registrationcenter.intel.com> with your given serial number of this product to create an account at secure [Intel® Premier Support web site](#).

- If you are having trouble registering or are unable to access your Intel® Premier Support account, please contact us via [this channel](#).

**Note:** If your distributor provides technical support for this product, please contact them for support rather than Intel.

### Steps to submit an issue:

1. Go to <https://premier.intel.com/>.
2. Log in to the site. Note that your username and password are case-sensitive.
3. Click on the "Go" button next to the "Product" drop-down list.
4. Click on the "Submit Issue" link in the left navigation bar.
5. Choose "Development Environment (tools,SDV,EAP)" from the "Product Type" drop-down list.
6. If this is a software or license-related issue, choose " **Intel® IPP for Linux\***" from the "Product Name" drop-down list.
7. Enter your question and complete the fields in the windows that follow to successfully submit the issue.

### Guidelines for problem report or product suggestion:

1. Describe your difficulty or suggestion.  
For problem reports please be as specific as possible, so that we may reproduce the problem. Please include a small test case if possible.
2. Describe your system configuration information.  
Be sure to include specific information that may be applicable to your setup: operating

system, name and version number of installed applications, and anything else that may be relevant to helping us address your concern.

### **License Definitions**

Please see the End User License Agreement file for the license definitions and restrictions on the library.

MPEG-1, MPEG-2, MPEG-4, H.263, H.264, MP3, DV SD/25/50/100, VC-1, G.722.1, G.723.1A, G.726, G.728, G.729, GSM/AMR, GSM/FR, JPEG, JPEG 2000, Aurora, TwinVQ, AC3 and AAC are international standards promoted by ISO, IEC, ITU, SMPTE, ETSI and other organizations. Implementations of these standards, or the standard enabled platforms may require licenses from various entities, including Intel Corporation.

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