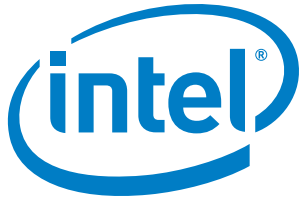

# Intel® Application Software Development Tool Suite 2.2 for Intel® Atom™ processor

In-Depth

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## Intel® Application Software Development Tool Suite 2.2 for Intel® Atom™ processor

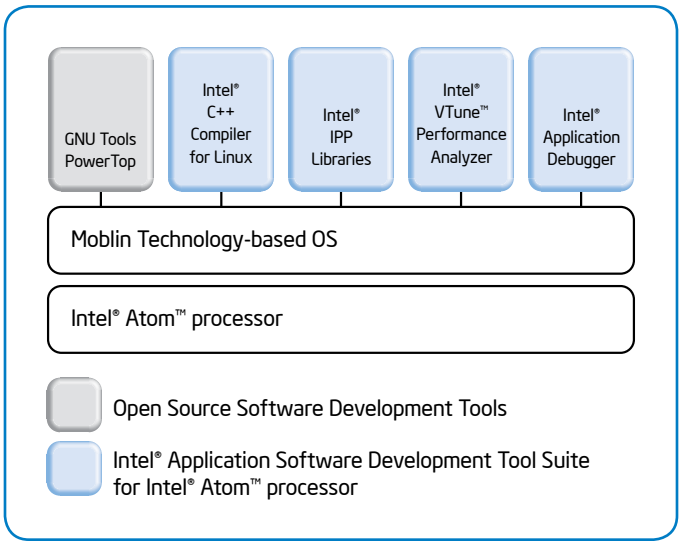
The Intel® Application Software Development Tool Suite for Intel® Atom™ processor is a complete tools solution set to address software performance requirements of Intel® Atom™ processor-powered MIDs, Embedded, Netbook, and Consumer Electronic devices, It enhances the productivity and experience of the application development process.

The Application Tool Suite covers the entire cycle of application software development: coding, compiling, debugging, and analyzing performance. All included tools are Linux* hosted and compatible with GNU tools.

## Features and Benefits

The Intel® Application Software Development Tool Suite for Intel® Atom™ processor is a complete set of tools that covers the entire cycle of software development. It addresses the software performance requirements for Intel® Atom™ processor-powered MID, embedded devices, Netbooks, and Consumer electronic devices and provides efficiency and productivity in the application software development process. In version 2.2 this includes support for Moblin 2.2 compliant operating systems as well as the Intel® Atom™ processor Z6xx. The following figure shows the components of the Tool Suite.

Moblin* application development support




## Completeness

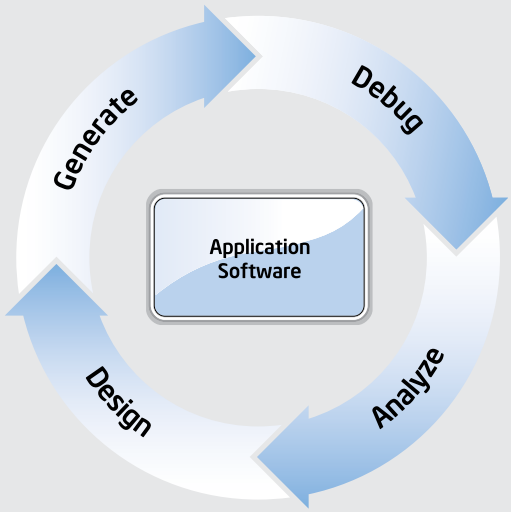
Use a set of software tools based on the latest tools technology for the entire software product development cycle (Design, Generate, Debug, and Analyze) without the need to research other tools components.

**Intel® C++ Compiler**

- Latest high level and microarchitecture targeted optimizations
- Full support for Intel® Atom™ processor
- GCC compatible

**Intel® Integrated Performance Primitives Library**

- Highly optimized multimedia functions
- Intel® Atom™ processor optimized




**Intel® Application Debuggers**

- Intel® Atom™ processor support
- Application debugging
- OS awareness
- Execution trace support

**Intel® VTune™ Analyzer**

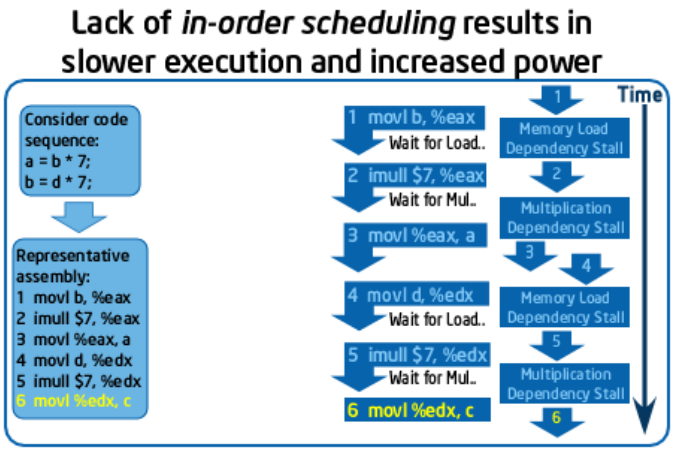
- Tuning code actually running on device
- Event based sampling for platform targeted performance optimization
- Identifying performance bottlenecks
- Tuning Assistant

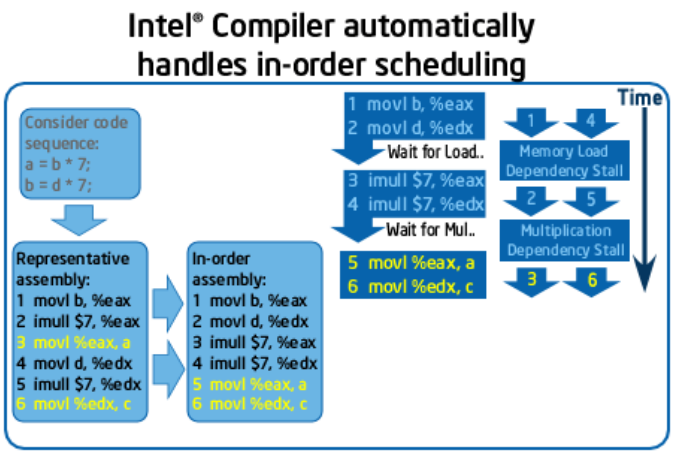
## Performance

New in-order scheduler and latest Intel® Atom™ processer specific improvements in the compiler provide a significant performance advantage over GCC. Highly optimized Intel® Integrated Performance Primitives provide the same simple API as for IA-32, while being highly optimized for Intel® Atom™ processor at the same time. Intel® VTune™ Performance Analyzer helps to identify performance bottlenecks.

## In-order Scheduler Compiler Feature

By minimizing dependency stalls due to low-power, IA-optimized instruction scheduling, the execution of routines can be sped up significantly.

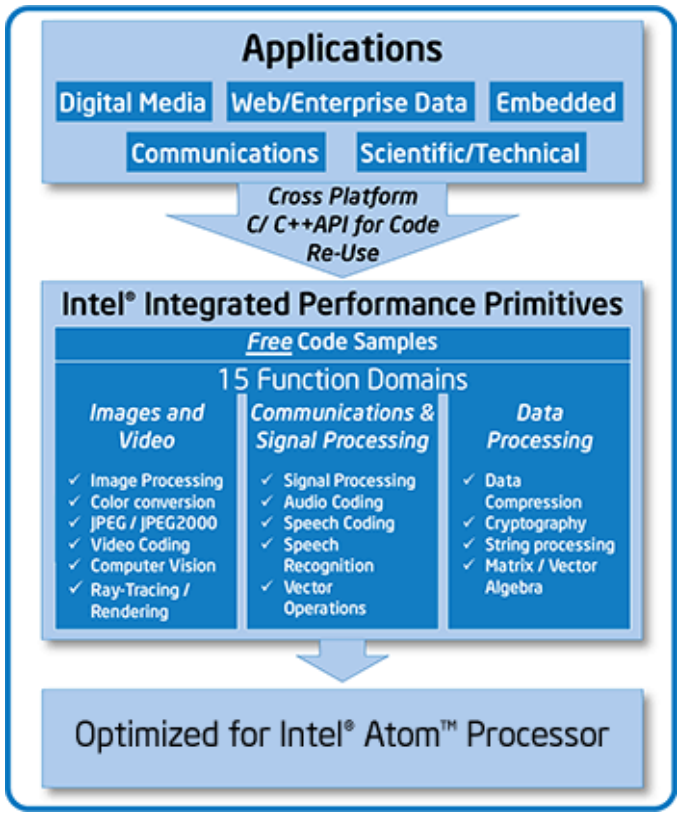



The Intel® Atom™ processor technology does not provide an integrated out-of-order scheduler that schedules instruction dispatch into the execution pipeline to take optimum advantage of the architecture and minimize dependency stalls. The Intel® C++ Compiler models the processor's instruction pipeline and execution flow, thus enabling it to produce code with the optimum instruction execution sequence for low-power IA.

## Multimedia and Performance Libaries

With Intel® Integrated Performance Primitives (Intel® IPP), application developers can concentrate on feature implementation rather than optimization of application code. Intel® IPP provides performance-optimized building-block functions for key software applications such as: multimedia playback/recording, editing, image processing, audio/speech/signal processing and network data communications. Free code samples downloadable from the Intel website enhance the value of the Intel IPP functions by illustrating the implementation of multithreaded application blocks such as video, audio, and speech codecs.

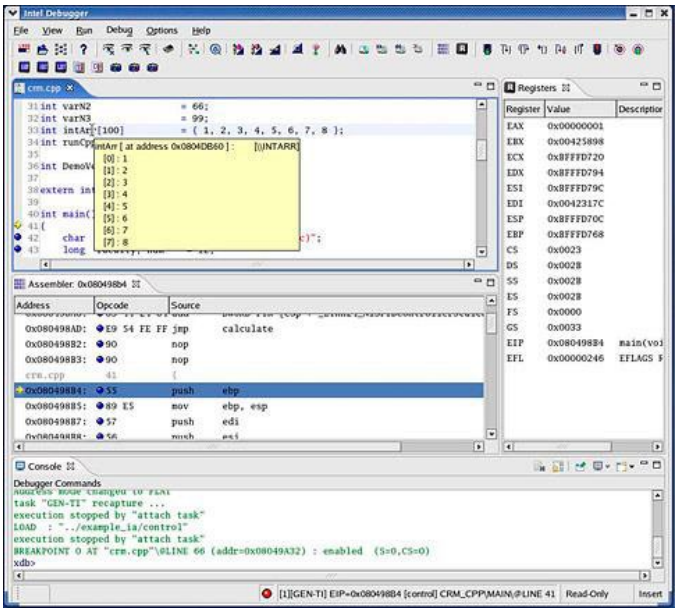


## Efficiency and Productivity

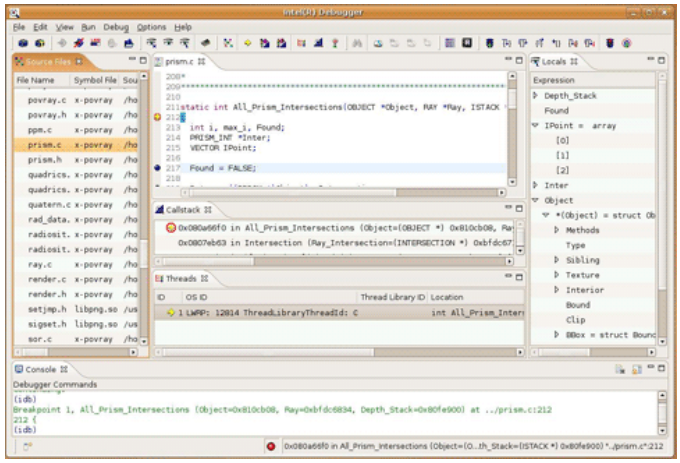
### Intel® Application Debugger

The Intel® Application Debugger for Intel® Atom™ processor supports all aspects of debugging, from low-level assembler debugging to high-level language C++ application debugging, with full-execution trace support, which helps to identify runtime errors (such as stack overflows, memory leaks and segmentation faults) that are normally hard to detect.

The Application Debugger supports native development and testing of Moblin technology-based applications within a KVMenvironment on the development host before they run on a real Intel® Atom™ processor-powered device. Native testing as well as remote debugging of processes running on a virtual machine reduces time and simplifies the development process. The full GUI-driven application debugger supports execution trace support to look back to the history of an executed program, providing OS awareness and thread aware debugging.



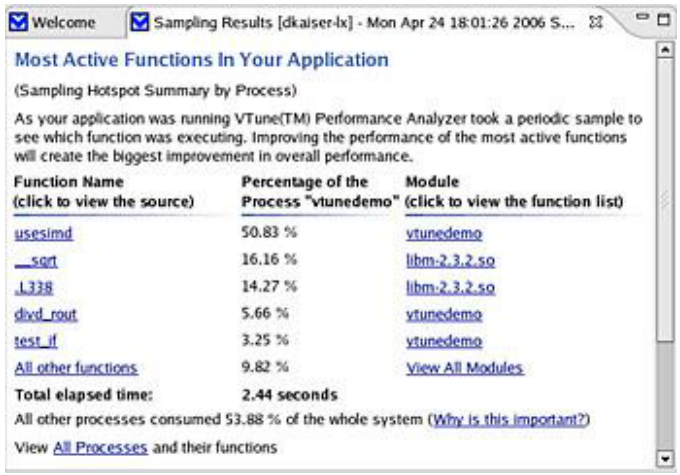
The Application Debugger provides an Eclipse-based GUI running on Linux host.



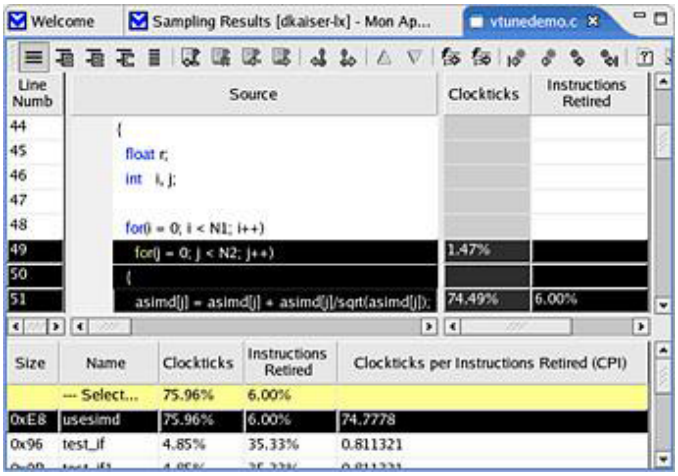
The Application Debugger provides full C/C++/ASM debugging, a callstack window for control of the application's callstack, and multithreaded debugging for applications using pthreads.

### Intel® VTune™ Performance Analyzer

Intel® VTune™ Performance Analyzer makes it fast and easy to find performance bottlenecks with a list of the most active functions. Click on a function name to display the source and show the most time consuming source statements. Furthermore Event Based Sampling support for Intel Atom processor enables you to determine the causes of execution stalls that impact performance.




Source and assembly views show you exactly which lines of code are taking the most time.




## Moblin SDK* and Intel® Tools

The Intel® Application Software Development Tool Suite is a set of highly optimizing software development tools, with powerful debuggers for more efficient debug cycles. The tools are compatible with the GNU world and complement the standard open source GNU tools offering, which are part of the Moblin development environment.

Furthermore, the Tool Suite integrates into the Moblin Image Creator 2 (MIC2). Kickstart scripts tightly integrate the Intel® C++ Compiler and Intel® IPP into MIC2's jailroot environment. This allows for save and host environment pollution-free development, while taking advantage of the full performance of your development system at build time. Alternatively you can also install the Intel® C++ Compiler and the Intel® IPP into a Moblin 2 virtual image running under KVM*. Simply downloading a developer Moblin 2 image and installing Intel® Software Development Tool Suite components directly into it let you start even faster with the development of Moblin technology based system and application software.

The flexible cross-development targeted installation concept of the Intel® Application Software Development Tool Suite opens it up to be customized to the developr's setup and to be easilly adjustable to future directions of the Moblin* and MeeGO* projects.

## Product Component Features and Benefits

### Intel® C++ Compiler for Linux*

- Compatibility with GCC Compiler saves efforts in porting/reusing existing code.
- Up to 30% performance gain over GCC–helps to extend battery life of Intel Atom processor powered devices, because faster application completion and faster execution of performance-critical code will allow the battery-powered devices to revert to idle mode faster and thus decrease overall power consumption of the device.
- In-order scheduler for the use of Intel Atom processor–a hardware platform-specific optimization technique to obtain extra performance advantage.
- Multipass optimization techniques (Profile Guided Optimization, Interprocedural Optimizations) are some key compiler techniques to obtain an extra performance advantage and extend battery life.

## Intel® Debuggers

- Full Eclipse RCP-based GUI helps to have better visibility of the application and system properties and thus have better control over the debugging process. Latest GUI technology enables developers to be more productive.
- Full Intel® Atom™ processor support provides an in-depth view into Intel® Atom™ processor technology. Provides easy access to most processor-specific features, including architectural registers, Intel® SSE3, etc. Execution Trace Support enhances the understanding of the flow of an executed program. It thus helps significantly with the isolation of memory leaks, data structure alignment, and execution flow issues. Displaying execution trace for system and application debugging enables more effective debug cycles.
- Linux OS Awareness* for full understanding of the system behavior at all times. Display all relevant kernel information, and debug the application in context with the OS.

## Intel® Integrated Performance Primitives

- Intel® Integrated Performance Primitives (Intel® IPP) is an extensive library of highly optimized software functions covering 15 major domains of functionality for multimedia data processing and communications applications.
- Highly optimized for Intel Atom processor-powered devices running Moblin technology. Developers can concentrate on feature development rather than optimization.
- Cross-platform compatibility and code reuse. Just use the same set of APIs, now available for Intel Atom processor / Moblin Techology powered devices . Port your Linux PC-based application code with less effort to MIDs, netbooks, embedded, and consumer electronic devices.

## VTune™ Performance Analyzer

- Analyzes applications running on Intel® Atom™ processor based platforms without recompilation or linking.
- Tunes code actually running on a device. Takes the entire hardware and software system into account while tuning the application for performance.
- Identifies performance bottlenecks. The VTune™ Analyzer brings you directly to the point where most CPU time is consumed.
- No recompile required. Unlike traditional instrumented profilers that make you recompile or modify your build script, just use your production executables.

## Pricing

To purchase the Intel® Application Software Development Tool Suite for Intel Atom processor please visit http://software.intel.com/en-us/articles/intel-application-tool-suite-purchase/.

## Support

Every purchase of an Intel® Software Development Product includes a year of support services, which provide access to Intel® Premier Support and all product updates during that time. Intel Premier Support gives you online access to technical notes, application notes, and documentation.

- Self help at https://registrationcenter.intel.com/support/ and a user forum at http://softwarecommunity.intel.com/isn/Community/en-US/forums/2497/ShowForum.aspx

## System Requirements

Host System:

- Ubuntu 9.x*
- Asianux 3*
- Fedora 10* and Fedora 11*

Target System:

- Support of all Intel® Atom™ processor variants (Zxx, Nxx series)
- Intel® Media processor CE 3100
- Intel® Atom™ processor CE 4100
- Linux kernel 2.6.x*, Moblin 2.x*, Moblin compliant OS

Download a trial version today. Intel® Application Software Development Tool Suite for Intel® Atom™ processor
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