



Intel® Embedded Software Development Tool Suite

For Intel® Atom™ processor

Product Brief

Intel® Embedded Software
Development Tool Suite

For Intel® Atom™ processor

Benefit from a complete Intel® Embedded Software Development tools solution for your Intel® Atom™ processor-based embedded system and application software development. Coding, compiling, debugging, and performance tuning made simple.

The Intel® Embedded Software Development Tool Suite for Intel Atom processor is a complete solution that addresses the software performance requirements of Intel® Atom™ processor-powered tablets, netbooks, smartphones, handhelds, and IVI- and TV-targeted devices. It also enhances the productivity and experience of the system and application development process.

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

- Intel® C++ Compiler for Linux*
- Intel® Application Debugger for Intel® Atom™ processor
- Intel® Integrated Performance Primitives for Linux*
- Intel® JTAG Debugger for Intel® Atom™ processor
- Intel® VTune™ Amplifier XE for Linux*
- MeeGo* compatibility and support

The Development Cycle: How the Embedded Tools Solution Can Help

Intel® C++ Compiler

- Highly optimizing
- Full support for Intel Atom processor
- GCC compatible

Intel® Integrated Performance Primitives

- Highly optimized multimedia functions
- Intel Atom processor optimized

Intel® JTAG and Application Debuggers

- Intel Atom processor and chipset support
- Kernel and low-level driver debugging
- Application debugging
- Thread grouping and thread-specific run control
- Qt* C++ class awareness
- Linux* OS awareness
- Built-in flash memory tool
- Execution trace support

Intel® VTune™ Amplifier XE for Linux*

- Tune code actually running on device
- Performance bottleneck identification
- Tuning assistant
- Event-based sampling targeted at embedded devices

MeeGo* Compatibility

- Validated for MeeGo*-based target devices
- Remote debug support for QEMU* MeeGo* image
- Support for Image Creator and chroot build environment

Features

Completeness

Use a set of software tools based on the latest technology for the entire software product development cycle (design, generate, debug, and analyze) without the need to research the components of other tools.

Performance

The new, highly optimized in-order scheduler and improvements in the compiler provide a significant performance advantage over GCC. Highly optimized Intel® Integrated Performance Primitives (Intel® IPP) provides the same simple API as for Intel® Architecture (IA)-32 architectures, while highly optimized for Intel Atom processors. Intel VTune Amplifier XE helps identify performance bottlenecks and analyze performance data collected on the Intel® Atom™ processor-based target device.

Multimedia and Performance Libraries

With 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

Debuggers

Intel® Debuggers for Intel Atom processor support all aspects of debugging, from low-level driver and kernel debugging to high-level language C++ application debugging, with full execution trace support and flash memory writer capabilities (only with JTAG hardware interface). Applications can be debugged on the host development environment as well as remotely via TCP/IP.

JTAG Debugger

The Intel® JTAG Debugger for Intel Atom processor is the recommended debug solution for hardware manufacturers, embedded developers, and operating system vendors who need to deal with kernel debugging and low-level driver development. A JTAG debug solution does not require a running operating system on the device. So, it is ideal for bootcode and firmware debugging as well as kernel debugging while booting the OS. Through a JTAG interface the target hardware is connected to the debugger on the host system. The JTAG debugger allows in-depth access of IA-specific features (e.g., execution trace support), as well as access to system-on-chip and chipset peripheral register content. This feature is unique and makes it valuable for driver development and debugging. The entire processor and peripheral registers are fully documented in the JTAG debugger solution.

Supported JTAG devices:

- Third-party vendor JTAG interface support available at Macraigor*. Get the hardware device through www.macraigor.com/intel.
- Intel® XDP3 JTAG interface (enabling product only, no public product—please contact Intel if you are a hardware manufacturer: MIDDevTools@intel.com).

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 identify errors that are normally hard to detect.

On the development host, the application debugger supports TCP/IP-based development and testing of MeeGo* applications within a QEMU*-based virtual machine environment, as well as in an a chroot wrapper. Thus, the debugger can be used not only to debug applications that are running on actual Intel Atom processor-powered devices, but also for host development system-based debug before

deployment to the targeted device. For threaded development, it provides the ability to define thread groups and apply breakpoints and run-control to specific application threads. Native testing and remote debugging of processes running on a virtual machine reduce time and simplify the development process. The full GUI-driven application debugger supports execution trace unwinding to look back to the history of an executed program, providing OS awareness and thread-aware debugging.

MeeGo* SDK and Intel® Tools

The Intel® Embedded 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 MeeGo* development environment.

Furthermore, the tool suite integrates into the MeeGo* Image Creator (MIC). Kickstart scripts tightly integrate the Intel C++ Compiler and Intel IPP into MIC'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 Intel C++ Compiler and Intel IPP into a MeeGo* virtual image running under QEMU* or a physical device running MeeGo*. Simply download a developer MeeGo* image and install the Intel® C++ Compiler, Intel IPP, or the debug server from the Intel® Embedded Software Development Tool Suite directly into it to start even faster with the development of MeeGo*-based system and application software.

Intel® VTune™ Amplifier XE for Linux*

Intel VTune Amplifier XE 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 low-power Intel Atom processors permits you to determine the causes for execution stalls that impact performance.

The Sampling Collector for Intel® VTune™ Amplifier XE driver for event-based sampling can be rebuilt within the target OS build environment on the host, accommodating limits in the software stack on some target devices. A modifiable build configuration script is provided for this purpose.

System Requirements

Host System:

- Ubuntu* 10.04
- Fedora* 12 and Fedora 13

Target System:

- Support of most Intel® Atom™ processor variants (Zxxx, Nxxx, Dxxx, and Exxx series)
- Intel® Media processor CE 3100
- Intel® Atom™ processor CE 4100, and CE 4200
- Linux kernel 2.6.x*, MeeGo* 1.1 compliant OS

Intel® JTAG Debugger supports:

- Intel® Atom™ processor Z5xx (SCH US15W), Z6xx, E6xx, CE 3100, CE 4100, and CE4200
- Intel® Media processor CE 3100
- Linux kernel 2.6.x*, MeeGo* 1.1 compliant OS

Support

Every purchase of an Intel® Embedded Software Development Product includes one year of support services, including 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.

Additional help can be found at:

<https://registrationcenter.intel.com/support/>

User forum:

<http://software.intel.com/en-us/forums/software-development-toolsuite-atom/>

Download a trial version today

Intel® Embedded Software Development Tool Suite for Intel® Atom™ processor:
www.intel.com/software/products/atomtools

Optimization Notice

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