

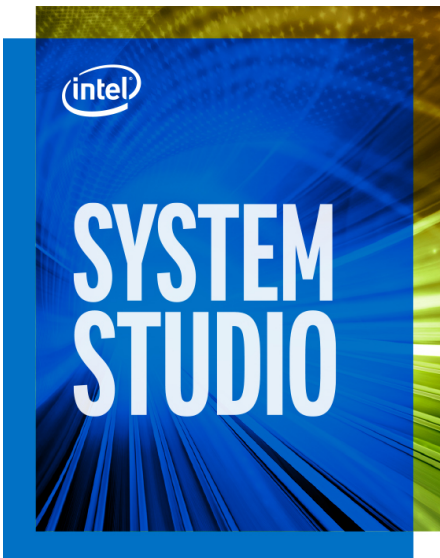
PRODUCT BRIEF

System and IoT Development
Intel® System Studio 2020



Accelerate Development of Smart, Innovative System and IoT Solutions

A cross-platform tool suite that simplifies system and IoT device application development, boosts application performance and power efficiency, and helps strengthen system reliability for smart, connected devices



Smart, connected devices are everywhere—and growing more complex every day. Intel® System Studio meets the needs of system and IoT developers, helping them deliver great products on Intel® architecture-based platforms. This comprehensive suite includes advanced tools and technologies to help speed delivery of energy-efficient, high-performance, smart, connected devices across wide-ranging system and IoT platforms (Intel Atom®, Intel® Core™, and Intel® Xeon® processors).

What it Does

- **Boosts performance and power efficiency.** System-wide analyzers, compilers, and libraries provide a smarter way to develop smart code and enhance both power efficiency and performance.
- **Accelerates development of smart, connected devices.** Develop fast with tools that help you build system and IoT applications and move efficiently from prototype to product.
- **Strengthens system reliability.** Quickly and easily enhance system stability and improve system bring-up using in-depth, system-wide debuggers and analyzers.

Who Needs Intel® System Studio?

- **Device manufacturers** looking for shorter system bring-up and validation cycles
- **System integrators** who need faster software stack integration and optimization
- **IoT application developers** who want to efficiently deliver new capabilities with access to cloud connectors and sensors for solutions like smart driving, perceptive computing, and more

Boost Performance and Power Efficiency

- **Take advantage of hardware capabilities** for optimal system and application performance and speed diverse workloads on the latest Intel® processors and Intel® Processor Graphics.
- **Increase performance and consolidate workloads** with highly optimized, platform-tuned libraries and compilers.
- **Find performance bottlenecks and optimize memory and storage** with insight from powerful, easy-to-understand performance analysis tools.
- **Reduce optimization time** with system-wide visual performance analysis.
- **Improve power efficiency** using actionable wake-up, sleep state, frequency, and temperature data.

Accelerate Development of Smart, Connected Devices

- **Develop system and IoT products** using a comprehensive suite of interoperable tools that span the development cycle.
- **Move efficiently from prototype to product** with highly optimized, platform-tuned libraries and compilers.
- **Get support for unified development** on Intel® processors (CPU) and Intel Processor Graphics (GPU).
- **Innovate IoT applications faster** with access to cloud connectors and 400+ sensors.
- **Ensure reliable data exchange** between edge devices and cloud services with cloud connectors.
- **Simplify development** with easy-to-use code wizards and samples.

Strengthen System Reliability

- **Accelerate system bring-up and testing** with deep hardware and software insight.
- **Use correlated system event tracing** to debug complex system issues.
- **Debug and trace** closed-chassis production systems.
- **Identify hard-to-find dynamic issues faster** with deep platform insight and sophisticated trace capabilities.

Comprehensive, Ready-to-use, Domain-Specific Libraries

Shave significant time off your product development schedule with the high-performance, production-quality routines in [Intel® Integrated Performance Primitives](#), [Intel® Math Kernel Library](#), and [Intel® Data Analytics Acceleration Library](#).

Quickly Isolate Complex System Interaction Issues with Correlated Event Tracing

[Intel® System Debugger](#) lets you capture and view logs with time-stamped and correlated trace information for software, firmware, and hardware components. Analyze complex interactions between software and hardware, making your product more robust.

Closed Chassis Software Debug and Trace on Production Hardware

JTAG hardware can be expensive and can't always be used in production hardware. This makes it challenging to find and resolve software issues in production hardware. [Intel® System Debugger](#) gives you the additional option of debugging and tracing over a low-cost, standard USB connection.



Use this comprehensive tool suite to optimize solutions across many industries:

- Industrial/manufacturing
- Retail
- Computer vision
- Smart cities, homes, and buildings
- Healthcare
- Storage
- Digital security and surveillance
- Office automation
- And many more

Take Advantage of Priority Support

Optimize your applications on a quicker path and overcome development challenges with Priority Support. It provides direct, confidential access to Intel engineers for quick answers to technical questions. Paid licenses of Intel® Software Development Tools include Priority Support for one year from the date of purchase, with options to extend support at a highly discounted rate.

Get Answers from the Experts

- **Enjoy direct and private interaction** with Intel engineers to help overcome performance bottlenecks or development challenges.
- **Submit code samples** via the Online Service Center.
- **Get responsive help** with your technical questions and other product needs.
- **Get free access** to all new product updates and access to older versions.

More Resources

- **Learn from other experts** via community product forums.
- **Access a vast library** of self-help documents that build on decades of experience with creating high-performance code.

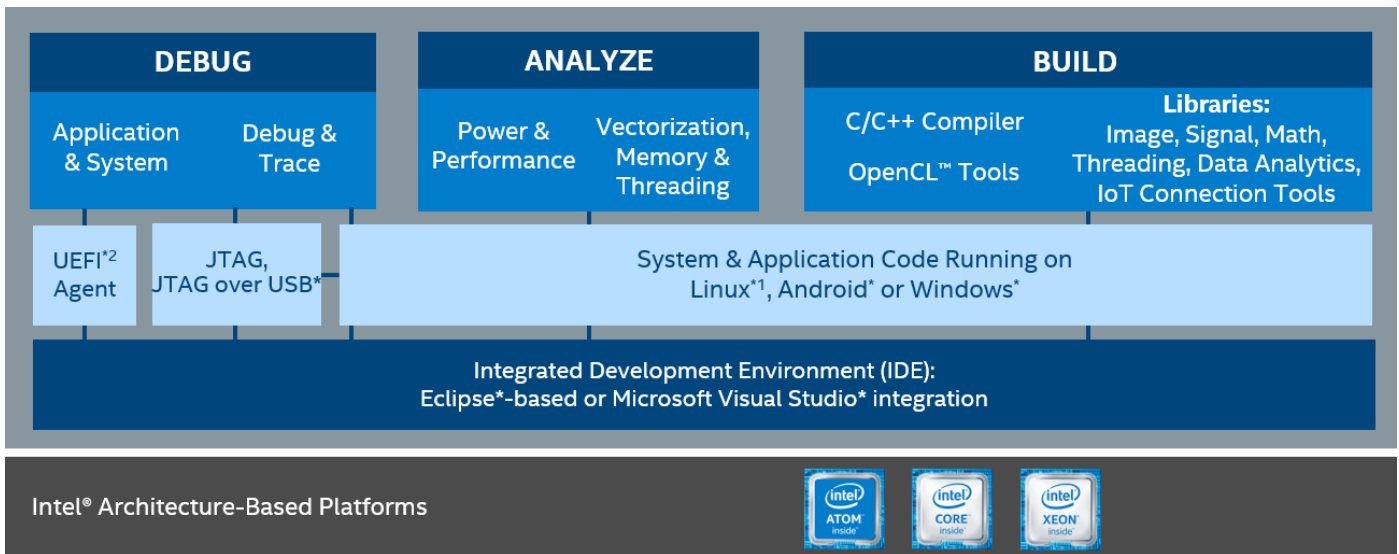


Figure 1. Get compilers and libraries, analyzers, and debuggers to fit your specific needs

Powerful, Easy to Understand Performance Analysis Tools

- **Intel® VTune™ Profiler** takes the guesswork out of how to improve performance in software deployed across CPUs and multiple accelerator architectures, including GPUs and FPGAs. Optimize application performance, system performance, and system configuration for IoT, media, storage, and more.
- **Intel® Advisor** is for software architects and developers who need the right information and recommendations to make the best design and optimization decisions. Create code that maximizes modern hardware capabilities, efficiently offloads to accelerators, and effectively uses more cores and vectorization.

Actionable Wake-Up, Sleep State, Frequency, and Temperature Data

Unlike other tools that measure average power usage, Intel® SoC Watch identifies the cause of the wake-ups. Consolidate wake-ups and save energy by remaining in a low power state for longer periods of time, leading to longer battery life.

Extended Insight into Windows* System for Enhanced Reliability

Intel® Debug Extensions for WinDbg* enables Intel® Processor Trace with timestamps over direct connect interface (DCI) to help triage timing and performance issues. Easily set up the target and connection type, then manage multiple simultaneous debug or trace connections to speed up system development. Configure and automate system trace to run on the command line.

IoT Connection Tools

Quickly convert your ideas into reality with IoT connection tools that abstract the complexities of connecting sensors to the devices and devices to the cloud. Components include standardized, open-sourced abstraction libraries and examples.

OpenCL™ Tools

Offload compute to Intel® processors (CPUs) and Processor Graphics (GPUs). The tools help developers streamline building, debugging, and analyzing OpenCL™ applications. Customize kernel code with Intel computer vision and media software tools.

Support for the Latest Platforms

Get support for new Intel® platforms, leading embedded operating systems, and the latest standards for your product.

Enhanced Developer Productivity

- **Task-based tutorials, code wizards, and samples** help developers work faster and be more productive.
- **Improved remote development** with support for Intel® Distribution of OpenVINO™ Toolkit in the Intel System Studio IDE and support for the latest IoT developer kits.
- **Intel® System Debugger** adds a newly designed Eclipse*-integrated and workflow optimized source-level debugger to increase developer efficiency.

Fast Prototyping and Deep, System-Wide Insight Build Your Competitive Advantage

Intel System Studio helps developers rapidly move from prototype to production and gives system and IoT developers the capabilities to be more productive. Supporting the newest Intel platforms and operating systems, it helps build in better performance with expert compiler and library optimizations. It's easier to isolate complex defects with debug and trace capabilities. And enhanced analyzers let developers improve both power efficiency and performance. The tool suite also works with other Intel software tools and SDKs—so developers can further innovate unique, competitive features.

COMPONENT	COMPOSER EDITION	PROFESSIONAL EDITION	ULTIMATE EDITION
BUILD			
Intel® C++ Compiler	•	•	•
Intel® Threading Building Blocks	•	•	•
Intel® Integrated Performance Primitives	•	•	•
Intel® Math Kernel Library	•	•	•
Intel® Data Analytics Acceleration Library	•	•	•
OpenCL™ Tools	•	•	•
IoT Connection Tools	•	•	•
ANALYZE			
Intel® VTune™ Profiler		•	•
Intel® Advisor		•	•
Intel® SoC Watch		•	•
Intel® Inspector		•	•
DEBUG			
GNU Debugger (GDB) ¹	•	•	•
Intel® System Debugger			•
Intel® Debug Extensions for WinDbg*			•
OPERATING SYSTEMS AND PLATFORMS			
Host Operating Systems	Linux*, Windows*		
Target Operating Systems	Linux ¹ , Android*, Windows*		
Hardware Processors and Platforms ²	Processors: Intel Atom®, Core™, and Xeon® Processors Developer Platforms: Intel® IoT Developer Kits		

¹Linux, Embedded Linux*, Wind River Linux*, Yocto Project

²Supported on Linux target operating systems

³See release notes for detailed information about supported processors and platforms.



Get Started Now with Intel System Studio

Free License >

Software

* Other names and brands may be claimed as the property of others.

**Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products. For more complete information visit <http://www.intel.com/performance>.

Intel's compilers may or may not optimize to the same degree for non-Intel microprocessors for optimizations that are not unique to Intel microprocessors. These optimizations include SSE2, SSE3, and SSSE3 instruction sets and other optimizations. Intel does not guarantee the availability, functionality, or effectiveness of any optimization on microprocessors not manufactured by Intel. Microprocessor-dependent optimizations in this product are intended for use with Intel microprocessors. Certain optimizations not specific to Intel microarchitecture are reserved for Intel microprocessors. Please refer to the applicable product User and Reference Guides for more information regarding the specific instruction sets covered by this notice.

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