

Intel® Boot Loader Development Kit

Overview

The Intel® Boot Loader Development Kit (Intel® BLDK) is a software toolkit that allows creation of customized and optimized initialization firmware solutions for embedded Intel® processor-based platforms. The Intel BLDK enables rapid development of firmware for fixed-function embedded designs—those requiring basic initialization and functionality rather than the full capabilities delivered with a traditional BIOS.

The Intel BLDK enables a platform initialization and boot capability comparable in performance, cost, and control to other solutions currently available for embedded designs. Because of its ease of use, rich feature set and open platform, the Intel BLDK provides an excellent incentive for developers who want to migrate their embedded solutions to Intel® architecture.

Development Kit Components

- Rich Code Base:** Based on the Unified Extensible Firmware Interface (UEFI), the Intel BLDK provides a plethora of features and functionality required in embedded systems.
- Reference Implementations:** Example reference board images from Intel provide a baseline from which developers can customize their system firmware images.
- GUI Tools:** An integrated development environment facilitates easy navigation, modification, and debug of the underlying code base. Module selection and build tools allow custom image creation without direct code changes.
- Documentation:** Comprehensive instructional documents enable self-sufficiency and effective support, no matter what the size of the project.

Standards-Based

UEFI specifies the layer between an operating system and the platform firmware. The end result is a standards-based environment for running pre-boot applications and booting an operating system. Intel's latest implementation of the UEFI Specification Version 2.3 is the Intel® UEFI Development Kit 2010 (Intel® UDK2010), which is used as the foundation for the Intel BLDK. Consequently, the Intel BLDK is fully compliant with the latest UEFI standards and compatible for use with the Intel® UEFI Development Kit Debugger Tool and UEFI 2.0 Shell.



Source Code Availability

Because Intel BLDK is based on open UEFI standards and the Intel UDK2010 implementation, a significant portion of the source code is openly available. Only very low-level CPU and chipset initialization code will be abstracted in binary libraries. While the Intel BLDK provides the tools and development environment for achieving common configurations and customization, availability of the source provides ultimate flexibility for customizing the firmware initialization of code.

Supported Platforms

Initial implementations of the Intel BLDK support embedded designs using the Intel® Atom™ processor:

- Intel® Atom™ processor E6xx series with Intel® Platform Controller Hub EG20T
- Intel® Atom™ processor E6x5C series-based platforms

Intel will expand this number, targeting embedded platforms that are ideal for customer migration to Intel architecture. Please check with your Intel representative for more details on platforms that will be supported by the Intel BLDK in the future.

Value for Embedded Designs

The Intel BLDK provides considerable value when creating designs on embedded Intel processor-based platforms:

No Cost or Royalties: Intel BLDK helps reduce BOM costs.

Reduced Boot Times: Customers can optimize firmware for reduced boot times and smaller firmware size.

Rich Feature Set: Includes power management and the ability to boot to a variety of alternate devices.

Greater Flexibility: Allows developers full control to create and customize firmware initialization.

Greater Reusability: UEFI standards help create firmware solutions that can be widely reused.

Rapid Firmware Development: Tools and development environment allow for rapid creation and customizing of reference firmware implementation.

Ecosystem Support: Members of the Intel® Embedded Alliance (intel.com/go/eca) provide a wide array of value-added products, solutions, and services based on the Intel BLDK.

FEATURES	BENEFITS
Initialization	Provides basic CPU, memory and chipset initialization required for fixed-function embedded systems.
Boot Devices	Allows boot to operating system installations on a variety of system devices and interfaces, including Serial ATA, Compact Flash, Secure Digital card, USB, firmware hub, serial peripheral interface, and network boot through PXE interface.
Operating Systems	Support for boot to UEFI-compliant Linux* operating system boot loaders, as well as interfaces to boot to Wind River VxWorks*, Microsoft Windows CE* 6.0 and Microsoft Windows Embedded Compact 7*.
Tool Chain	Microsoft Windows*-based development environment and tool set supports the Intel BLDK IDE and tools, allowing binary modification of many configuration options in the system firmware.
Display	Provides optimized display and splash screen support utilizing the UEFI-compliant Graphics Output Protocol driver from the Intel® Embedded Media and Graphics Driver.
Boot Speed and Size	Baseline boot speed under three seconds, and capable of firmware image sizes well under 1 MB.
Network File Transfer	TCP/IP file transfer capability for implementation features such as remote firmware upgrade or firmware recovery.
Power Management	Power management support is compliant with Advanced Configuration and Power Interface (ACPI) specification version 3.0.
Debug	Support for the Intel® UEFI Development Kit Debugger Tool enables faster and easier debug of Intel® processor-based platforms.
Shell	Supports the UEFI 2.0 Shell environment for simple operation and diagnostics.

Intel BLDK downloads: intel.com/go/bldk

UEFI and Intel UDK2010: uefi.org and tianocore.org

Migrating to Intel architecture: intel.com/p/en_US/embedded/designcenter/migration

Intel in Embedded and Communications: intel.com/embedded

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