

x86 Firmware

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You Can

Build On



GENERAL™
S O F T W A R E

x86 Firmware You Can Build On

General Software delivers a dynamic firmware platform for custom x86 embedded systems. With its industry-leading products—**Embedded BIOS™ 2000** and **Firmware®**—General Software provides you with the advanced features you need for building perfect-fit firmware that exactly meets your product requirements.

Embed Added Value into Your Products

Your competition and technology's rapid-fire pace makes quick, feature-driven design and redesign of your product offering essential. In fact, system flexibility may be one of your most important competitive advantages.

With Embedded BIOS 2000 and Firmware, you can exploit a rich environment that lets you embed more of your engineering value into your products. The configurability of Embedded BIOS and the application programs you can run in Firmware ensure that you have an unlimited range of options when designing and developing your hardware.

Combining firmware flexibility with an open-ended, 32-bit programming environment, Embedded BIOS and Firmware let you further optimize your hardware and software using the development tools and languages your programmers are familiar with. Now there's no reason to say "No" to a valuable feature for your target or to a redesign of your final product due to system firmware constraints.

Perhaps it's time for you to find out why hundreds of leading x86 embedded systems OEMs are taking advantage of General Software's products and services to embed added value into their products.

Control Your System Firmware

The **Embedded BIOS 2000 Adaptation Kit** provides you with high-level firmware tools and full source code to give you ease, speed, and power—while leaving you in complete control of your custom BIOS adaptations. Now, instead of being an unknown "black box," your BIOS firmware becomes a dynamic component of your embedded system designs—giving you a critical edge to beat your competition.

The practical, modular structure of Embedded BIOS makes it easy to build and maintain multiple BIOS adaptations. Each of your projects will have its unique project file and Board Personality Module. Yet all of your projects will be built from the same core BIOS and chipset code base, ensuring consistent results across all of your products.

The **Firmware Software Development Kit** equips you to extend your system firmware to include application program functionality—a new software category we call *Firmware Applications*.

You develop Firmware Applications using standard 32-bit Windows (Portable Executable) development tools. Since Firmware Applications are operating-system independent and continuously available, they survive any crash of the foreground operating system or user application—keeping you in control of mission-critical functions.

Get Great, On-Target Features

General Software's firmware technologies are designed specifically for x86 embedded applications. The result is that you get the most comprehensive, on-target features available from any BIOS firmware on the market today. Plus, you have the ability to add custom features with Firmware Applications you build yourself or that you source from an Independent Software Vendor.

Without easy-to-use and robust embedded features built right into your firmware, you can lose significant time simply getting a board to boot with the functionality you need. Desktop BIOSes and pre-boot HALs simply don't have many practical, embedded features built-in.

When you use the Embedded BIOS 2000 Adaptation Kit, you have access to more than 500 source-level, customization options—without editing the core BIOS. Simply edit a project file to override the reference design BIOS file we provide.

Or, use BIOSStart™, our rule-based, expert system that ensures the consistent setting of valid options for any supported chipset. BIOSStart provides a user-friendly, Windows® interface to facilitate defining and building custom BIOS adaptations.

Of course, with Firmbase you can add your own Firmware Applications to your target, making your target feature set virtually limitless.

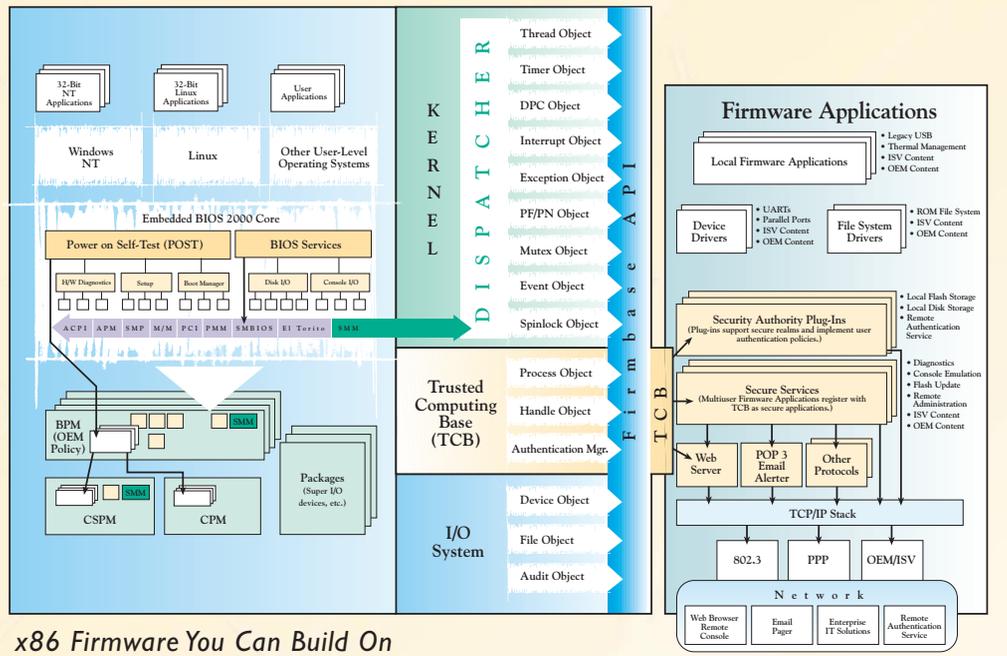
Leverage Product Life-Cycle Features

Firmware with features that support your entire product life cycle—from design and development through production and field updates—adds value to your engineering resources. Embedded BIOS 2000 and Firmbase are designed to support your product's entire life cycle, and you won't find all these features in any other BIOS firmware.

For example, Embedded BIOS 2000's **Integrated Debugger** and **Console Redirection** are just what you need when booting new hardware for the first time.

Using a DEBUG-style command interface, the debugger provides memory-modification and display commands, I/O port commands, Flash memory manipulation, and more. You can disassemble BIOS, DOS, and application code at the lowest level and answer "what if" questions about the proper setup of chipset and Super I/O registers—greatly reducing your development cycle time and virtually eliminating superfluous PROM programming.

Console Redirection is quite flexible. You can assign console I/O differently for POST/DOS, the system setup screens, and for the debugger—making it possible to use different COM ports for different purposes. This is a great benefit when developing, testing, and maintaining headless and remote systems.



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Embedded BIOS 2000's unique **Manufacturing Mode** enables you to reprogram target devices during product manufacturing or when products have been distributed and are in the field. This special boot mode, which responds to requests from a remote host over a high-speed serial connection, can start during BIOS POST in several ways.

For example, the target device can enter into Manufacturing Mode based on a test for particular hardware signals, triggered by a critical POST error, or simply as a defined boot activity. The target can then be controlled and updated by a remote host for a specified length of time or until rebooted.

Firmbase—a patented technique to run 32-bit, portable executable applications as part of your system firmware—greatly extends the full, life-cycle support you can provide for your embedded products. Your application programmers use standard, 32-bit development tools to build the valuable Firmware Applications that run in the Firmbase environment. These Firmware Applications can include remote diagnostics and serviceability, remote performance reporting, audit trails, administration, and much more.

Profit From Our Embedded Expertise

General Software is the only company that's 100 percent dedicated to x86 embedded firmware. That's one reason **AMD**, **Intel**, and **STMicroelectronics** ship our firmware pre-installed on their embedded evaluation boards.

And that's why for more than 10 years, x86 embedded systems OEMs who want flexibility and control in their BIOS firmware have chosen General Software. Whether you are developing a low-volume, special-purpose device or a mass-market appliance, you'll find that our sales representatives, our support engineers, and our Technology Centers are profoundly familiar with x86 embedded systems.

We've gained valuable experience with hundreds of x86 embedded OEM projects. We've built this experience into Embedded BIOS 2000 and Firmbase. And, we look forward to introducing you to these technologies and working with you to successfully implement x86 firmware you can build on!



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