



# 組み込みシステム向けBIOS Embedded BIOS® 主な仕様

## Adaptation Kit Contents

- Full source code, approx. 100,000 lines
- Build tools, excluding Assembler/Linker
- BIOSStart – Windows-based configuration tool
- Reference Manual, Over 700 pages

## BIOS Configuration

- Over 500 build options, source level
- Project file model uniquely defines a build
- Project files override kit defaults
- Project files manage configurations
- Select from pre-written Chipset, CPU, and Board Personality Modules
- Fine tune BIOS features with symbolic defines
- Board Module available for placement of OEM-written code within well-defined architectural framework

## BIOSStart System Build Utility

- Graphical, runs from Windows
- Automates project file management
- Manages multiple projects at once
- Forward/Backward rule chaining expert system aids consistent selection of options

## BIOS Build Process

- BIOSStart from within Windows
- Also builds from DOS command line
- Use Microsoft, Borland or Paradigm toolchains

## BIOS ROM Footprint

- Smallest size: 32KB
- Largest size: 256KB

## CPU Personality Module

- Entry points: 40, all optional
- Useful for supporting embedded CPUs
- Integrated UARTs, DMA, INTR, timers

## Chipset Personality Module

- Entry points: 30, all optional
- Provides chipset programming support
- Chipset initialization and configuration
- DRAM autodetect & configuration
- L2 Cache autodetect & configuration
- System bus speed control support
- PCI IRQ assignments
- Watchdog timer support
- Chipset-level power management
- SMI management
- Fast A20 gate support

## Board Personality Module

- Entry points over 60, all optional
- Redefines default board-level policies
- Redefines Flash/ROM addressing
- Super I/O configuration
- Flash Vpp controls and delays
- Define custom BIOS setup screen
- Define PCI IRQ routing
- Define SMBIOS tables
- Define SMM policies
- Define address policies
- Module available for standard reference designs

## Industry Initiatives

- ACPI 2.0
- APM
- El Torito
- Legacy USB (via Firmware)
- PCI 2.2
- POST Memory Manager
- PXE
- SMBIOS
- SMM
- SMP 1.4

## Memory

- Advanced memory management support up to 64GB memory configurations
- 3 regions, 0-1MB, 1MB-4.2GB, 4.2GB-64GB
- OEM configurable system memory

## Mass Storage

- ROM disks (read only)
- RAM disks (read/write)
- Flash disks (read/write 1M + times)
- Up to 8 soft and 8 hard drives
- 360K, 1.2M, 720K, 1.44M floppy drives
- IDE/ATA Drives (CHS, LBA, Autodetect)
- CD-ROM (El Torito)
- OEM-Added file system drivers
- All drivers emulate floppy or hard drives

## Shadowing

- 12 regions of 16KB (C000h-EFFFh)
- 1 region of 64KB at F000h
- Selectable in setup and factory defaults

## Flash Driver Support

- AMD, Intel, Atmel, Toshiba drivers included
- Bulk Erase, Boot Block, and Sectored
- 8/16/32-bit, 1-way, 2-way, and 4-way interleaved
- NOR/NAND Flash
- Ganged Parts to size
- Windows by Chipset or Board Module
- Supports dedicated PC memory cards

## Standard Devices Supported

- PC, XT, AT keyboards
- 8042/8051 keyboard controllers
- PS/2-style mouse
- Speaker/sound
- Real-time clock (RTC)/CMOS
- 6845 video controllers
- 8250/16450/16550 UARTs
- 8254 counter/timer Controllers
- 8259 interrupt controllers
- 8237A DMA controllers
- 82077/82078 FDC
- IDE/ATA controllers
- Standard/ECP/EPP parallel ports
- Port 92h (A20 gate and rebooting)

## Console I/O

- Video: MDA, CGA, VGA, serial port
- Keyboard PC/XT/AT, matrix, serial port
- Redirection over serial link or OEM hardware
- ANSI used for COMx cursor addressing
- OEM-defined keyboard and video drivers

## Integrated Debugger

- Similar to DOS DEBUG with extensions
- Console I/O redirected independently
- 16/32-bit code disassembly
- Memory display/modification
- 16/32-bit register display/modification
- 16/32-bit memory addressing
- Read/write/erase/update/fill Flash array
- Read/write chipset registers
- Read/write PCI configuration space
- Cache, speed, and A20 gate controls

## Setup Screen System

- Standard and board-level custom screens
- Enter Debugger and Manufacturing Mode
- Shadowing/Cache control screens
- Flash disk formatting
- Q/A Burn-in diagnostics screen
- Save to CMOS or OEM device

## Manufacturing Mode

- Speeds to 115K baud on 16550s
- Higher speeds with OEM data link
- Target drives shared to remote host PC
- Re-Flashing supported with host S/W
- Host API available to OEM applications

## Configurable POST

- Optional graphical POST with sound
- OEM-configurable critical errors
- OEM-configurable soft errors
- Fast boot option for quick IPL
- 3-level of memory tests
- Board callouts for OEM customization
- Console I/O independently redirected
- Port 80h codes for logic analyzers
- ASCII POST codes for ANSI terminals
- POST deep codes for critical errors
- Errors handled by core or OEM

## Operating System Support

- Boots Windows 9x/NT/NTE, Linux
- Boots Windows CE from disk or ROM
- Boots DOS from disk or ROM
- Boots embedded operating systems in Flash (real, or protected mode)

## Licensing

- Adaptation kit licensed for development
- Pre-copy royalty licensed separately
- Volume discounts available
- Samples/Demos available

## Support

- Technical support is available worldwide from General Software, its Technology Centers, and Authorized Distributors