# intel.

<div align="center">

## BIOS ENGINEERING
Intel Corporation, 5200 NE Elam Young Parkway
Hillsboro, OR  97124-6497

</div>

**DATE:**　　　July 18, 2001

**FROM:**　　　DPSD BIOS Engineering

**SUBJECT:**　　EA81510A.86A Standard D815EEA & D815EPEA BIOS Production 11

---

## About This Release

- EA81510A.86A.0051.P11.0106190714
- 815 Video BIOS 62 Production Version 2113
- ICH2 PXE Ver. 83

## Features/Errata Fixed in This Release

P11-0051

- Made the "Language" setup item non-editable when user setup access level is set to "View Only".
- Fixed issue to prevent  the BIOS from reporting false information in the Extended System Configuration Data (ESCD).
- Fixed issue where the Unattended Start password must first be entered to unlock the keyboard so that the Setup password could be entered.  The correct behavior is to let the user enter into the Setup Password without the need for the unattended start password upon entrance into setup.
- Fixed issue of video corruption at the bottom of the screen when booting from a floppy during unattended start.
- Corrected video corruption and system hang when the setup question "Fixed Disk Boot Sector" is set to "Write Protect" and an OS attempts to write the boot sector.
- Fixed issue with non-functional PS/2 keyboard and mouse when booting to Windows* 2000 or Windows NT4.0 with unattended start and legacy USB enabled.
- Corrected issue with USB pointing devices not working correctly in USB legacy mode.
- Fixed issue of yellow explanation mark appearing in device manager when PS/2 devices were missing.
- Fixed USB Keyboard POST issue.
- Fixed  "Entering Setup" appearing at the bottom of the screen after pressing F10 while in Setup.
- Added string translations for PARTIES, USB boot, and BBS 3.0.
- Added support for PCI IDE Bus Mastering (DMA) for BIOS INT 13h hard disk reads and writes on IDE devices that support IDE Bus Mastering.
- Added support for doing 32-bit IDE PIO mode data transfers inside BIOS INT 13h.
- Added support for version 1.11 of Intel Express BIOS Update
- Updated ICH2 code to account for ICH2 BIOS Specification Update Revision 1.8 documentation changes 8.0 and 9.0 (B4 Stepping Support).
- Fixed APM so that drives would correctly power down in APM mode.
- Added new code to do USB polling.
- Fixed problem with Adaptec 3940 resource conflict with Windows 2000 when using an AGP video.
- Fixed detection of multi-channel CNR audio upgrade.
- Fixed issue of Windows S3 loosing some USB devices when connected to USB hubs.
- Fixed issue of BIOS not detecting PME wakeup correctly.
- Corrected translations for Wake on LAN, Wake on PME help strings.
- Added "Mode 5" (UDMA/100) option to the IDE UDMA Mode BIOS SETUP question.

- Added support for displaying the maximum UDMA mode supported for auto-typed IDE drives in BIOS SETUP.
- Fixed issue of BIOS incorrectly reporting UDMA modes from IDE devices that do not support UDMA.
- Passwords are no longer updated when custom defaults are loaded.
- Fixed auto-display of IDE Multi-Sector Transfers option.
- Added generic OPSD PARTIES implementation.
- Corrected functionality of the LBA Mode Control option.
- Added Intel 815 video BIOS VBIOS 6.2.
- Added setup option to BIOS to allow users to Enable or Disable USB boot.
- Fixed issue of shift keys not working in DOS with a USB-only keyboard configuration.
- Fixed incorrect display of a hard drives capacity for larger hard drives.
- Updated CNR support to comply with CNR 1.1 Specification.
- Added new release of PXE code. (Intel Boot Agent 4.0.17 containing PXE build 83)
- Fixed a problem where the event log would not display correctly if Quiet Boot was disabled.
- Added AMI BBS 3.0 and USB boot functionality.
- Added prevention of using Blocked unsupported processors.
- Added support for latest generation processors.
- Added update for Pentium III 1.1 GHz processor support.
- Changed POST screen reporting of ATA/66 and ATA/100 IDE devices to display "Ultra DMA Mode ATA/66" or "Ultra DMA Mode ATA/100" respectively.
- Fixed issue of BIOS not reporting the resources for, PS/2 keyboard and Game Port, incorrectly.

P10-0045
- Added new Processor update for Pentium III processor.
- Updated the Intel Copyright String.

P09-0040
- Banner change to P09-0040.
- Added support for programming the back-panel diagnostic LEDs to all green on resume from ACPI Suspend-to-RAM.  We were not programming the diagnostic LED on S3 resume and it would come up with default values according to hardware strapping.
- Fixed a SMBIOS problem where the Type 9 System slot - "current usage" field     always showed up as "unknown" instead of "Available"/"In Use" for the AGP slot.
- Resolved issue with waking up from ACPI S3 where some video cards would hang the human interface to the system.

B-0039
- Made password entries case-insensitive.
- Enabled 2nd USB host controller to respond to wake events.
- According to the ADC Self-Test (v2.4) and the ICH & ICH2 BIOS specs, Delayed Transaction Enable (DTE) should be set = 1.
- Changed Secondary Master Latency Timer setting. According to the ADC Self-Test (v2.4), the Secondary Master Latency Count should be set to 0x4.
- On resume from S1 (Standby), OS software, as part of its normal power management path, enables the USB host controllers to generate an interrupt (not SMI) as part of transactions occurring on its ports. This would not usually be a problem, but because the USB Legacy Keyboard/Mouse Control register is shared between USB HC 1 and 2, the act of enabling HC interrupts (USBPIRQEN) affects both host controllers.
- Fixed a problem where POST did not display the correct amount of memory if more than 1GB of memory was used in the system.
- Fixed PCI subsystem device/vendor ID programming for onboard video.
- Fixed initialization of OPROM area in RAM. The code wasn't making D8000-DFFFF R/W before writing FFh's to it. Now we write FFh's from C0000 through DFFFF.
- Fixed string corruption interaction with the floppy interface with ABSCMOS.

- In Multi_Sector_Transfers_Proc and Ultra_Dma_proc added check for ABSCMOS running.
- ADC Self-Test Version 2.4.12 found several 815 and ICH2 registers that were not at recommended values.  Thus changed the 815 and ICH2 registers to recommended values.
- Added support for Standard 3 SKU with no VGA connector.
- Removed unnecessary AMR-specific code.  One path in the code was only necessary for AMR support. It isn't ever executed for AC97ONLY or CNR. I removed that path and optimized the routine.  This change does not apply to ICH. We can make this change for ICH2 because we have no ICH2 AMR products.
- Fixed a problem where the SMBIOS information for the onboard Audio (On Board Devices Information TYPE 10) always returned "Device status" set to Enabled.
- Insure that the PCI Configuration register is really restored when returning from SMI.

P08-0038
- Added audio codec signature.
- Fixed CMOS corruption error.
- Fixed a problem where hard drives in DMA mode would not return from S3 with the default Microsoft IDE drivers.  The reason for this is that the commands that are passed back to the OS to initialize the drive are executed before the drive is ready.  To solve the problem we are waiting for the drive to be ready before passing the values back to the OS.  This fix also includes a fix to the timings for ATA-100 drives.  This may increase S3 resume time, as we now need to wait for the drives to become ready before we give any IDE data to the OS.
- Added SMBus to the Slot Characteristics 2 of PCI slot 2 SMBIOS data structure.
- Fixed a security issue, that started with BBS 3.0, so that in system config (Maintenance) mode when Unattended Start is enabled the system still enters Setup.
- Fixed a security issue, that started with BBS 3.0, so that when Unattended Start is enabled the system will not boot from floppy or CD-ROM.
- Resolved issue with some ATAPI CD-ROM not being seen when an ATAPI Zip drive is attached to the same channel.
- Fixed a problem where an FDC error was displayed during POST if a SCSI/ATA100 card was connected to the system, and the user had never entered setup.
- VBIOS 6.0A Production Version 2269
- Initialization of ARMD limited setting of ARMD device emulation type to either floppy or hard disk.

B-0036
- Fixed issue where bootable Windows 98SE CD-ROM would hang during boot if CD-ROM was before hard disk in the BIOS boot order, and the user selects boot hard disk from the Windows 98SE CD-ROM boot menu.
- Previously the CTRL, ALT and SHIFT keys were being reported as stuck keys if held down.  Also the shift state bits at 40:17 were being cleared as part of USB init.  Now, CTRL, ALT and SHIFT keys (6 keys total) will not be recognized as stuck keys, the keyboard error will not be reported if they are held down during POST.  The 4 shift state bits at 40:17 are preserved at USB init.  The OS can use these keys held down during POST to enter Safe Mode, bypass startup files, etc.
- Removed obsolete AC97 code. This code was only needed for AMR support.

B-0035
- Added ICH2 workaround: Assertion of the ICH2's RTCRST# signal does not reliably reset all RTC-well register bits to their default states as documented.  Some RTC-Well configuration bits may not be restored to their expected default states when booting after RTCRST# assertion.  BIOS's already should be checking RTC_PWR_STS bit during POST (this bit is not affected by the issue).  If this bit is set, BIOS should explicitly reset all RTC-well register bits to the desired default states.

D-0034
- Fixing up our drive table late in POST so Windows can find everything.

- Fixed Memory Size Decrease error reports to the correct CMOS Battery Low.
- Fixed the issue of Bios not displaying date and time error when CMOS battery is corrupted.
- Fixed a problem where the CNR LAN was disabled coming out of POST.
- Checked in the translation for some untranslated strings. And updated string translations.
- After all ATA/ATAPI devices are initialized, Security Freeze Lock command is issued to all ATA hard disks if the respective device supports Security Mode Feature Set. After this command is executed, the device rejects all other security mode commands until next power cycle. This may help eliminate the possibility of installing password into the devices by any un-authorized entity. This is the default implementation of the Security Mode Feature Set. However this default implementation can be changed according to OEM requirements through the hook provided.
- Changed the Timer 0 from mode 2 (rate generator) to mode 3 (square wave generator). This is the default AT setting defined by IBM. Awhile back this timer was changed to mode 2, because of possible performance improvements.
- Under the IDE screen menu for each drive the informative text was always showing up. Now it disappears when a drive is not present, or is selected as type None. This was accomplished by converting the static text items to dynamic text items.
- Rearranged Power Management Setup Options to clarify under which context each option functions. The Setup Options having to do with power management were often confused so this change is to clarify which options are used under ACPI, which are used under APM, and which are used regardless of power management mode.
- This fix obsoletes the MKF_VIDEO_REPOST_OPTION SUPPORT. If you have video repost in your current BIOS, this will not effect you. If you did not have video repost in your BIOS, this may change the behavior. We will always check Q_VIDEO_REPOST. Microsoft says that we should NOT repost video, so Q_VIDEO_REPOST should default to disabled.
- Removed an old workaround that breaks current products OS's return from S3.
- Memory count during POST is displayed in the same row where "Checking NVRAM "message is displayed. This is ok for English language but in some other language (e.g. German) the "Checking NVRAM" message is longer than the length of memory count string, which is causing garbage on the screen. Removed the checking NVRAM message from POST screen. This message is not required because the OPSD BIOS always require NVRAM.
- Added AMI BBS 3.0 and USB boot functionality. For more information, read AMI BBS 3.0 specification.
- To facilitate development for all chipset North Bridge and South Bridge combinations, we are separating all South Bridge code and tables from the North Bridge component.
- Fixed the problem where Win98/2K/ME device manager in ACPI mode cannot display COM port IRQ correctly when COM port IRQ is shared in BIOS setup. COM port IRQ sharing in SMSC super I/O needs a special register setting. First, configure UART1(or 2) to use the desired IRQ. Second, configure UART2(or 1) to use No IRQ selected. Third, IRQ share bit in UART1 Option register should be set. The original ASL code for super I/O didn't consider this SMSC specification. Added necessary checking to meet this specification.
- Fixed issue where the PS/2 mouse device was disappearing from Device Manager if Windows 2000 was installed with no mouse attached and then the PS/2 mouse was attached after OS installation.
- Fixed an issue where unpopulated DIMM slot is shown as 'Unknown' in type 17 of the SMBIOS structure.
- Re-initialization code for the SIO
- Corrected LAN string and DIMM strings to match silk screen.
- Optimized OPROM and PAM registers so ASL can better report to OS (Win2K/WinME) usage regions.
- The NO_POP signal mutes audio in an attempt to prevent the user from hearing popping noises as the audio device is initialized. It was being asserted when waking up from S3, but never deasserted.
- To prevent D3h hangs of SMBus locking we clock the SMBus clock so the SPD state machine can finish if it was previously interrupted.

- Option ROMs which are shadowed should not be declared as a part of the _CRS for the root PCI bus since these addresses are decoded by the memory controller, not the PCI bus.

P07-0031
- Fixed game port for boards with hard audio, was not an issue for soft audio boards.
- Enhanced CD-ROM boot emulation detection.
- Reset SIO keyboard controller early in POST to prevent hangs of D1, 0C, and 15 POST Codes.
- Fixed error where ABSCMOS would return corrupted strings.
- Added second COM port to SMB structure, resolves LDCM issue.
- Under the IDE screen menu for each drive the informative text was always showing up. Now it disappears when a drive is not present, or is selected as type None.  This was accomplished by converting the static text items to dynamic text items.

P06-0028
- Removed AUTO as an option for the "Use ARMD drive as" question.
- Previously we only supported 1 onboard audio device. If onboard PCI audio was detected, AC'97 audio was automatically disabled. This prevented CNR audio from ever working on a board with PCI audio stuffed. Now we allow the user to enter Setup and select which audio device they want to use.
- Updated the Italian setup strings for the setup keys.  Modified the help text for the "Enter key" to add the "Ł" symbol.  Also modified the abbreviation for the word selez. to use Seleziona.
- Fix up the drive table late in POST so Windows can find everything.
- Fixed code to check the Validate command when calling a SMBIOS function 54 subfunction 4006. This fixes the trackers: BEL:05B: DMITEST (Post-Haste I): Mux value is read instead of parameters valid.
- Fixed bug where the AC'97 PCI SSID and SSVID were incorrectly programmed (their locations were swapped).
- Added support for the SST FWHx(SST49LF004) 2nd stepping silicon.
- Changed AML code to consistent Byte wide access for PS2E.
- Remove code that checks for PnP OS in COMA SIO setup question code.
- The previous method of determining DCT (Tras and Trc) was based on DIMM SPD Data. However, there is ambiguity in the spec in interpreting the SPD Data such that some PC 133 DIMM that are supposed to run Tras=5, Trc=7 will fail randomly. This fix will always programmed PC 133 Memory to Tras=7, Trc=9.
- Fixed the issue of bios not being able to recover from CD-ROM with floppy drive attached to the system.  The reason was that during recovery, the OS issued an INT10 function 0Fh to check for the monitor mode and used the return value in AL to index into some other procedures.  Since our BIOS's do not support video during recovery, INT10 function 0Fh would return whatever value happened to be in AL register at that time.  And it happened that prior to the INT10 call, the OS read our bios data area at location 40:10 and stored it in AL register.  Bit 7 and 6 of this location define number of floppy disk drives and bit 0 determines the presence of floppy disk drive A.  In the failure case, 40:10 contained a value of 41h that was accidentally returned by INT10 function 0Fh to the caller to be used as an index (an invalid index).  The system hung because the code was being indexed to no where.  However when floppy drive was removed, 40:10 contained a value of 1. This was a valid index.  So there was no problem.
- Windows makes an INT 13h AH=48h call to the BIOS to get floppy media size.  It uses this in the format size option that it offers to the user.  Previously, we would return no information about the drive size if no media was present.  Now we ask the drive about media size even if no media is present.  ATAPI Zips will return 100MB when no media is present, so this becomes a format option once Windows 98 has booted.
- Fixed the issue of BIOS not meeting SMBIOS 2.3.1 spec
- Removed DMA 0 from the list of possible DMA's for the ECP LPT port (ACPI).
- Fixed the issue of 766Mhz Celeron processor speed being displayed as 800Mhz.
- Improved AGP card speed display in setup.
- Fixed Memory Size Decrease error report to the correct CMOS Battery Low.

- Fixed the issue of Bios displaying "Memory size decrease", not displaying "Cmos battery low" and date & time error when Cmos battery is corrupted.
- In suspend handler added code to set PWRBTN_EN so power button will function as expected.
- Added Ghz support.
- Changed the default of Q_On_Lan to the stay_off option. This resolves the issue where the CMOS mfg defaults do not match the DFT spec.
- Added version 1.1 of EBU to the BIOS Build.
- Changed the Timer 0 from mode 2 (rate generator) to mode 3 (square wave generator). This is the default AT setting defined by IBM.
- Disallow AGP 4X if card is operating at 3.3 Volts

P05-0026
- Fixed an issue where the system would hang if the system has more than 128KB of total option ROM space required.
- VBIOS 5.1 Production Candidate 2.0 2231
- Fix ACPI S3 state that caused Win98 and W2K shutdown problems.

P04-0014
- GC01 candidate for the Express BIOS Update(EBU) application.
- Added support for the New Flash Product(ICH2NS) for the Non-Secure BIOS update.
- Define FLASH_PRODUCT as ICH2NS for the customer flash updates on ICH2 products. Added a BIOS work-around for the Ich2 bug, where the read/write transactions were not considering the A16 inversion, when DTE bit is set.
- Added code to lock SDRAM Read/Write Throttle Control Register (Set Bit 3 Reg. 72h). Since the value has already been locked in stone, this bit can now be set. Once set, we have to spin the BIOS to change the throttling values.
- Fixed issue with USB2 Legacy not working in DOS.
- Limit the amount of Memory Loads to 4 for PC133. For 5 or 6 rows, it will always run at PC 100.
- Fixed an issue where the processor programming for unlock 66 MHz processors are not set correctly. The reason of the failure is when we went to the updated CPU Mux programming method, the CMOS values corresponding to the MUX Values is incorrect.
- Added code to restore all segment register after returning from option rom execution.
- Added code to look at the number of floppies and hard drives in the BDA before and after option ROM execution to determine if a drive was added. Previously we looked to see if INT13h/40h had been chained.
- Added code to address erratic results going from different Sleep States(S1 or S3) after installing the system in S3. The resulting behaviors were:
    After setting to S1, Win2K will report that the computer is not ACPI-compliant.
    After setting to S1, the system will not go to S1 but to S3 but the system will not wake up from PS/2
    Before accessing any data through SMBUS, ICH2 required the TCO Timer to be halted so as not to interrupt the SMBUS Transaction.
- Removed code that adjusted the Memory Buffer Strength to be 0.7x for light load PC133.
- Added work-around to fix the following issue:
    Understand why the CMOS BB Fault Tolerant Flag is set to NOT Normal after a Flash Update. This will make the BIOS code restore A16 inversion when it thinks that the Flash Update did not complete.
    Understand why RTC, WOL , PME will cause the SMI handler in the BB to hang.
- Added fix will temporarily allow the BIOS to clear RTC, PME, WOL Status early in POST to prevent a hang at 0xE8 while the system is trying to reset.
- Adjusted the Memory Buffer Strength and PMOS/NMOS for PC 133. SMD is always set to 1.0X, SMA is 0.7X for loads<=4, 1.0 for loads between 8 and 32, and 1.7 for loads >=36. SCS is always set to 1.0X. PMOS/NMOS is the same for row<=2, but PMOS is incremented by 2 for row>=3 and NMOS is incremented by 1 for row>=3.
- Add new Video BIOS Production 05 Build 2197.
- The code uses port 64 bit 2 to determine if the system is coming out of Soft or Hard Reset.

However, there are two failing scenarios
 Soft/Hard Reset Bit getting set differently.
 Windows 2000 issues a hard reset but does not issue a hard reset.

- This fix is basically to read the PCI Config Space of the Audio Device if it is already initialized. If it is not, then think of this as a soft reset.
- Added new Processor BIOS Update for Pentium(r) III C0 Step
- Added support for Express BIOS Update
- Added code from PCG to fix two USB Hub Controllers issue.  The issue is the USB Legacy Registers of the two USB HCs are shared such that when the OS disables USB Legacy for one, it disables the USB Legacy of the other even when the USB Driver handler is not installed yet.

P03-0007

- Changed the Buffer Strength SMD/SDQM to 0x7 X always for PC 100. This change is primarily to fix the Soft DVD Issues.
- Procedure 'UpdateMenuItemWnd' makes use of menu access levels to control shading/access of menu items found on the setup pages.  This access control restricts the user from selecting the menu item to view it's contents when the user's access level is "VIEW ONLY".  Since the terminal questions already implement edit protection via access level, this menu protection appears unnecessary. Therefore, evaluation of the menu access level has been removed.  Procedures 'ChkMenuWndAccess' and 'ShadeMenuWnd' are unique to the disabled code and are also removed to reduce overall code size.
- Updated to 815 Spec EDS Rev. 0003 to set Bits 15-10 for System Buffer Strength (Reg. 92h) and set SMD Reg 0x92 Bit 2 and 3 always for PC 133.
- Questions that were residing in the same CMOS byte as the "Memory Configuration" question were set non-checksum. These questions were set to be included in the checksum, which allows this CMOS byte to be checksummed. (Note: This had to be done because non-checksummed bytes are protected from being loaded with defaults.)
- NOTE: this will cause a CMOS checksum error the first boot after flashing in a BIOS with fix.
- Fixed problems where certain AGP Video Cards were displayed as Integrated AGP. The cause of this is certain AGP Cards do not report if they support 1X, 2X, 4X. What this fix will do is display AGP Speed Unknown if the cards do not report any Speeds
- Fixed problems where the DMA Mode of drives are not displayed correctly in the IDE
- Configuration Menu. The problem was the BIOS pointed to the wrong offsets in looking for the supported DMA Mode.

P02-0006
- Shortened length of Video Power Down Help string in Setup.
- Enhanced BIOS build to allow SIO Setup questions to be dynamically hidden.
- Move all files from $632/AMICORE to $632/OPSD/CORE.
- Added new external procs for setup questions for IDE configuration in advanced setup.
- If we execute the ABSCMOS read after write in CMOS there is on error.
- Fixed hot start issue while in manufacturing mode.
- Added updates needed for Latest Core fixes: New setup keys (up to 3). Convert to Intel coding style.
- Add equate to be able to build from TIP
- Synch up this override file to synch up with the core.
- Added latest fixes from the TIP for SMBIOS Memory Array Description. Added the latest CMOS Token definitions
- Add new Setup string for Rapid BIOS Boot
- Add support for LAN Enable/Disable for Easton Fab C
- Restored Soft Audio, Modem and SMBUS Controller registers when resuming from S3 state.
- Add fix where when we ran iflash /f, the Floppy Controller gets lost in the first reboot.
- Removed unnecessary chipset-specific include file.
- Fixed CNR issue where the "Audio" and "Modem" Setup options would disappear once set to "Disabled", so the devices couldn't be re-enabled again.

- Optimized CNR initialization to speed up POST.
- Fixed issue where Audio Setup option would appear when there was no onboard audio device. Changed a call to a renamed core routine to use its new name.
- Enhanced AMISSP2.EXE features for developers.
- Added core support for later generation processors.
- Enhanced the Boot Block / VPD fault-tolerant feature to better support BEL test coverage.
- Enhanced the Boot Block / VPD fault-tolerant feature to better support BEL test coverage. Also added support for the 2nd stepping of SST FWH (SST49LF04).
- Added new SMBIOS equate for socket 370 processor upgrade. Improved conformance to the SMBIOS specification for the "Language Type Information" structure.
- Changed programming of FAN1 to match the way we program FAN2. The fan worked fine before, but now we're being consistent. No customer impact.
- Fixed issue where the processor brands and speed extensions are not displayed correctly.
- Fixed hard coding of DIMM information in SMBIOS to get information from each products description file.
- Fixed problem where the USB Legacy does not get disabled even when set to disabled in Setup
- Fixed "Memory Error" with Adaptec 3940 card.

- Updated SMBIOS Event Log Address for products with Boot Block Fault-Tolerance support.
- Updated BUILD ID, Date, and Time stamps.
- Refined the password checksum implementation.
- Modified the check for LAN stuffed/not stuffed to read a Firmware hub GPIO instead of an ICH/SIO GPIO.
- Fix stuck key detection for BIOS keys. Convert INT9POST.ASM to Intel coding style.
- Fixed the issue, where Wake on PME# was enabled, even after the Wake On PME# Setup option was disabled.

B-0005
- Enabled Windows 2000 system wake from the S4/Hibernate state via RTC alarm function to pass the WHQL test.

P01-0004
- Fixed issue where Memory with SPD Byte 126 not equal to 0x64 is being reported as PC100.
- Fixed issue where WHQL Unreported IO tests will fail if the test is run after coming out of S3.
- Fixed problem where SMBIOS data is getting corrupted when copying from GPNV to Memory.
- Update to new PXE Binary Ver. 79
- Added workaround for USB Port Enable Issue. The workaround is to check if a port needs to be re-enabled every SMM Entry.
- Added new external procs for setup questions for IDE configuration in advanced setup.
- Add a feature to disable the Front USB only in USB Legacy Mode because of an issue where ICH2 INF Update hangs the system when the Front USB is enabled
- Add code to checksum the password Add the token values and new CMOS values
- Update CMOS Token Values for IDE Setup Menu.

B-0003
- Added support for Alert on LAN feature of Kennereth Plus.
- Fixed the issue of invalid custom defaults being loaded in BIOS Setup even though none custom defaults have been saved previously. Updated Date and Time stamps.
- Added core support for later generation processors.
- Removed unnecessary delays associated with an ATA master on primary channel and an ATAPI master on the secondary channel.
- Fixed int15 load BIOS Default path.
- Fixed PSN default value in VPD Area.
- Add ability to detect if the Onboard LAN for ICH2 products is present in the system or not

- Added the latest 815 Memory Code per BIOS Spec. 0.75
- Add support to display the AGP Speed Capability of AGP Video in Setup.
- Add the latest SMBIOS Structures for Easton. Add new Date/Time, Beta 3 labels. Add the new CMOS tokens. Remove unnecessary Non-SPD messages in Setup Add the new items in POSTTBL for displaying CNR, Non-SPD, Over 512 MB Failures in POST.

B-0002
- Fixed issue where USB Legacy was not working when doing a shutdown to MS-DOS from Windows 98.
- Fixed issue where BIOS will not boot when flash from a previous release.
- Fixed "Memory Error" with Adaptec 3940 card.
- Fixed issues with mouse detection and high-frequency processors.
- Update to 815 Spec Update. - Set the AIMM CAS Latency to 3 always. - Fixed issue where CD-ROM/LS120 Recovery does not work. - Add support for Refresh Rate other than 15.6 us for 256 MB SDRAMs. - Fixed DMI Function 4008 for SPD Reading. - Update SRCOMP/TDLL/RDLL programming. - Update the ASL code for USB2 Support and additional GPIOs.
- Fixed the problem where invalid CMOS/GPNV error occurred after disabled LPT port from Win95/98 APM mode system device manager.
- Resolved a CMOS Checksum error during POST after Custom Defaults were forced by Intel specific INT15.
- Fixed issue where a floppy seek was occurring when Quick Boot was enabled in BIOS SETUP.
- Resolved CMOS checksumming bug with Intel specific INT15 which forces custom defaults to CMOS.
- Added support for USB legacy for dual USB controllers.
- Generalized GPIO programming for diag LED's (No customer impact expected).
- Added support for SST FWH devices (SST49LF00x).
- Added optional support for CNR. Made AMR code optional.
- Add POST Timer support.
- Add Fast Table-Driven Post.

- Moved CNR equates which were not really product-specific to a common file.
- Generalized GPIO programming for Audio (No customer impact expected).
- Fixed the issue where the User Access Level Help string is not being displayed correctly.
- Removed ICH B0 UIP fix, not needed for ICH2 B0.
- Fixed ACPI S3 for PC133 Memory configuration. Restore SRCOMP values coming out of S3.
- Increased the duration of the no memory beep code.
- Added support for BIOS to retrieve the address of strings inside the internal BIOS string database. No external customer impact.
- Fixed CNR issue where the "Audio" and "Modem" Setup options would disappear once set to "Disabled", so the devices couldn't be re-enabled again.
- Re-added strings that were left out of previous version.
- Added support for Brazilian Portuguese (BR) in multiple language code.
- Implement the Load Custom Default fix.
- Implement Passwords Checksum fix to prevent phantom password bug.
- For ICH2 LAN implementation the expansion ROM base address register is not programmable, so an expansion ROM base address cannot be programmed to a memory device node.
- Fixes SMDXREF issue where the number of type 17s do not match the total shown in Type 16.
- Update the memory SRCOMP algorithm with the latest DCN. Add support for ICH2 B0 USB second host controller interrupt routing. Add support to wake up from PS2 keyboard from S3 with out moving the PS2 device again to refresh the screen. Fix the intermittent PS2 mouse getting lost when we come out of S3 with the PS2 keyboard. Fix PC99 issue where ACPI suspender test reboots on the second wake from S1.
- Add timeout to the IDE bus master polling routine to allow drives to time out, coming out of S3, instead of waiting forever.

- Add onboard LAN enable/Disable code for ICH2 LAN products.
- Fixed issue where the SMBUS base address was not listed in an IO device node.
- Added new processor speeds.
- Added support for higher frequency processors.
- Corrected language error.
- Abstracted SIO code for SMCB27X.
- Changed a GPIO write to a read/modify/write.
- Added support for fault-tolerant Boot Block flash updates.
- Updated 815 VBIOS to 4.1.2103
- Synch up with SSILINK changes to have Segment difference depending on the Linker.
- Add the new and improved processor Speed detection algorithm. Reset the USB Host Controller to allow Cherry Keyboards to work in Setup and USB Legacy Mode.
- Fix previous check-in where the ICH ID is incorrectly represented.
- Removed unused equates.
- Fix code for SMBIOS to correctly read and write SPD Data to Memory SPD.
- Add UDMA=100MHz Message during POST when an ATA-100 drive is detected.
- Fix issue where NMOS/PMOS will increase if there are more than 4 rows in the system coming out of S3.
- Add support for Wake On LAN in ACPI S5.
- Add the product-specific equates for GPIO equates and build switches.
- Changed SMC-specific names to SIO-generic names
- New Date/Time Stamp, release information and CMOS Token Values

B-0001
- Initial Beta Release.