



DATE: April 4, 2000
TO: OPSD Business Unit
CC: iPG / OPSD BIOS Engineering
FROM: iPG / OPSD BIOS Engineering
SUBJECT: 8C1A100A.86A Standard CA810 BIOS Prod 11

About This Release

- 8C1A100A.86A.0020.P11.0004041027
- 810 Video BIOS v 04.01.2102 (Dated 03/23/2000 09:12:46).
- PXE Version 74
- BIS Release 9

Features/Errata Fixed in This Release

P12-0021

- Changed character "MHZ" to "MHz" in Pentium(R) III processor 133MHz warning message.
- Fixed issue where the processor brands and speed extensions are not displayed correctly.
- Added the ABSCMOS fix for read after write in cmos there was an error.
- Added new external procs for setup questions for IDE configuration in advanced setup.
- Added RPM support for video flashable.

P11-0020

- Com2 fix (COM2 does not work coming out of S3).
- Added fix for WHQL failure: Unreported I/O.
- System Test fix (RTC does not wake system from S4).
- Added Pentium(R) III processor 133MHz warning.
- Unlocked processor support for up to 800MHz.
- Fixed security bug where the "User Access Level" Setup option was only displayed when Supervisor and User passwords were both set. It should be displayed whenever the Supervisor password is set.
- Fixed the speed displayed during POST and Setup with processors that support the extended frequencies.
- Updated 810 Video BIOS.
- Fixed issues with mouse detection and high-frequency processors.
- Fixed issue where Processor Speed was being set to a default state after loading defaults in Setup. This only occurred when the frequency multiplier was greater than 5X.
- Added new speeds to the Maintenance mode "Processor Speed" pick list.
- Optimized event log initialization and updates for faster POST execution.
- Fixed issue where Processor Serial Number comes up ENABLED in the SETUP when the board is booted for the very first time.

- Fixed the problem where DMI type 17 Memory Device referencing PMA (Physical Memory Array) mismatches PMA listed value.
- Removed product specific programming for the MOON ISA device.
- Add feature to remove SMBIOS Onboard Device Entries when the device is not stuffed in the SKU.
- Fixed issue where the DMI function 54h sub function 4008h SPD programming interface was not working properly.
- Fixed ACPIIRT Failure where the ACPI SCI is not being set as Level Sensitive for Floppy-less System.
- Added support for full duplex mode for the Serial Port B. Added setup question for Half-Duplex/Full-Duplex. This is only for the SMCB27X.
- Fixed the problem where invalid CMOS/GPNV error occurred after disabled LPT port from Win95/98 APM mode system device manager.
- Fixed issue where BIOS detects an option ROM on 3COM Ether Link XL PCI cards that don't have an option ROM.
- Added support for USB legacy for dual USB controllers.
- Added revision 53 changes that were lost when revision 54 was checked.
- Optimized event log initialization and updates for faster POST execution.
- Removed unused I20 support.
- Implemented PARTIES support.
- Updated Intel Copyright.
- Fixed issue where a floppy seek was occurring when Quick Boot was enabled in BIOS SETUP.
- Fixed Setup options which could not be changed with ABSCMOS.
- Added support for socket and slot processors within the same BIOS.
- Added OEM specific hook at BIOS POST code 13h. No customer impact.
- Work-around for ICHx RTC Date/Time Frozen Issue.
- Resolved a CMOS Checksum error during POST after Custom Defaults were forced by Intel specific INT15.
- Fixed DMITEST Failures where the SMBIOS Handle is incorrect for the Memory Structures.
- Added new speeds to the Maintenance mode "Processor Speed" pick list.
- Resolved CMOS check summing bug with Intel specific INT15 which forces custom defaults to CMOS.
- Resolved a CMOS Checksum error during POST after Custom Defaults were forced by Intel specific INT15.
- Fixed "Memory Error" with Adaptec 3940 card.
- Speed up clear_real_extended_memory routine by a factor of 2.
- I20 boot device initialization is set to disabled.
- Fixed issue where the processor brands and speed extensions are not displayed correctly.
- Fixed the color where the LAN in Boot Order shows up as Blue when the User enters Setup in Limited Mode.
- Add feature to remove SMBIOS Onboard Device Entries when the device is not stuffed in the SKU.
- Added Boot Block hooks for diagnostic LED support.

P10-0019

- Version 11 of Pentium® III CPU BIOS Update
- Add Support for CuMine 128 Processor.
- Add Work-around for Hot Start Issue in MFG
- Fixed issue where Boot Order in IDE Configuration does not work

P09-0018

- Fixed Wake On Lan (WOL) hang with 3COM Fast EtherLink 3C905x.

P08-0017

- Fixed issue where ARMD-FDD devices would not work if the Floppy Controller was DISABLED and Floppy A Type was set to "Not Installed" in SETUP.
- Fixed potential boot hang at check point 05 caused by GPIO reset state.
- Fixed ATAPI ZIP not booting as HDD.
- Fixed issue where certain disk utilities were failing due to invalid Information Flags returned from INT13 Function 48h.
- Added error beeps if a video adapter is not detected during POST (one long beep, followed by 2 short beeps).
- Added support for SSDT Table to declare that the HW does not support STR when selected in Setup or if some add-in components do not support STR.
- Added CD ROM Recovery.
- IDE Configuration question were broken when a drive that was not installed was selected as 1st HDD.
- Removed Floppy Drive from Boot Menu when Floppy Controller and Floppy Drive is not present in the system
- Fixed problem where attempted BIOS attempted to boot off the same device multiple times. Fixed problem where a device that traps int19, and then fails to boot would cause the BIOS to not continue to try the rest of the boot devices.
- Added support for POST status screen that will appear just before booting the operating system if and only if the toggle key was pressed during POST. The POST status screen contains information about the systems CPU, memory, attached peripherals etc.
- Fixed hang whenever Novell BootWare PRO-100B v1.00 card is in the system.
- Modified the silent boot to not display option ROM messages during POST.
- Fixed a problem where the screen toggle key did not work during late POST.
- Fixed a problem where the small logo did not show up after the BIOS switched to the BIOS screen and an error message was displayed. Also fixed a problem where the screen would be cleared during POST when unattended start was enabled.
- Fixed BBS issue where only the first SCSI drive was being initialized. Corrects "no emulation" CDRom booting on Adaptec cards.
- Added initial implementation of BBS PnP runtime functions.
- Fixed unattended start on floppy disk booting. Unattended start now asks for a password during the ATAPI CDRom boot attempt only if a bootable CDRom was found.
- Increased the maximum number of PCI busses from 16 to 256.
- Added support for multiple Languages.
- Fixed issue with Option ROMs getting key presses. Improve setup message handling.
- Fix stuck key handling to allow setup entry key to be held down without generating keyboard error.
- Added support for POST status screen that will appear just before booting the operating system if and only if the toggle key was pressed during POST.
- Fixed issue where FDD POST errors were getting lost.

- Fixed booting of floppy emulated CDROMs on SCSI CDROM drives with Adaptec SCSI cards.
- Fixed a problem where the logo would be corrupted and the system would hang during POST if the toggle key is pressed after POST code 89h and before POST code 98h.
- Fixed the problem where the BIOS would set UDMA-66 timings for an UDMA-66 capable drive when a 40 conductor IDE cable and CDROM or hard drive was attached to the same channel
- Implemented the releasing of IRQ 12, 14, and 15 if no device is using the channel.
- Fixed hang with booting the Windows 98 CD on a SCSI CDROM, and selecting boot to hard drive when the hard drive is an IDE-HDD.
- Fixed the problem where the BIOS would set UDMA-66 timings for an UDMA-66 capable drive when a 40 conductor IDE cable and CDROM or hard drive was attached to the same channel
- Fixed WHQL PC99 "IDE & Video Disable Test".
- Fixed a problem where the setup option for "After power failure" did not work in ACPI mode when it was set to "Last State" and the system was shutdown. The system would always return to "On".
- Fixed hang during POST when the hardware did not support S3.
- Fixed issue where the next system boot after corrupting the CMOS is prompting for the password to enter SETUP.
- Fixed issue where RTC did not advance after CMOS was cleared.
- Fixed problem where DA92h int 15h function does not return the correct processor Model ID.
- Added BIOS workaround to make TI SN104975VF USB Hub work with USB Legacy and slow speed USB devices.
- Enhanced Hot Start fix in Manufacturing.
- Fixed issue where Wake On Ring does not work with an AMR Modem is installed in Windows 98 APM Mode.
- Add Processor Serial Number (PSN) enable/disable feature.
- Fixed issue where boards would sometimes hot-start during initial runs in manufacturing.
- Modified the silent boot to not display option ROM messages during POST.
- Fixed a problem where the screen toggle key did not work during late POST.
- Corrected the CPU speed displayed when a 533MHZ Celeron™ was installed in the system.
- Fixed Type 16, 17, 19, 20 SMBIOS Failures.
- Updated SMBIOS Type 10 structures to correctly report the enabled/disabled status of onboard devices.
- Fixed initialization of SMBIOS Type-0 BIOS Characteristics QWORD.
- Fixed issue where audio did not work on a cold boot. Fixed issue where system took more than a minute to resume from S3.
- Added support for Int 15, function E801. Fixed installation of Novell Netware and Redhat Linux.
- Fixed issue where going into and out of S3 state and then restarting to MSDOS mode from Win98 causes the USB Keyboard to be lost.
- Added the support to display "E" and "EB" MHz for overlapping processor speeds.
- Bios setup cannot allow parallel port to use I/O range 228. This is illegal per PC99
- Fixed issues where focus was being lost when questions would disappear due to loading defaults.

- Display Static strings are modified to use dynamic text support
- Modified the setup question for the floppy A/B type to automatically disable and hide when the floppy controller question is set to disable.
- Changed Boot Order Manufacturing Defaults to match latest DFT.
- Fixed some Microsoft ACPI tests that are not currently part of the HCTs.
- Fixed problem where the system will hang if invalid settings are present in CMOS.
- Fixed issues related to incorrect AMR detection.
- Added PCI Slot IRQ Configuration Setup options
- Updated PXE code to build 74 to fix a double reboot issue in manufacturing.
- Fixed a problem where the f000 area was writeable after the BIOS returned control to the OS after a S3 wake up.
- S1 sleep state issues
- Fixed the System hang at post code A6 with ES1373 card after resume.
- Fixed hang at VBIOS screen on resume with 2 USB devices installed
- Fixed ACPI STR hang, immediate wake from STR, and Added PS2 Mouse/Kbd wake from S1 sleep state. Added BIOS work-arounds for the 810 video problems.

B-0016

- Fixed issue where no LAN SKU will wait approx. 2 minutes coming out of S3 and disabling Audio.
- Fixed issue where NT 4.0 will not boot with the no LAN SKU after shutting down the system.

P07-0015

- Fixed Adaptec CDROM booting issue on BBS.
- Fixed issue where Date/Time is updated when CMOS Checksum is Bad.
- Fix hang at checkpoint A2h if floppy drive not installed or
- Fixed issue where INT15 DA29 Load Custom Defaults call was disabling the second bank of CMOS.
- Improved the issue where the IDE configuration in setup is taking too long to display IDE string.
- Fixed issue where INT13 Function 41 calls to invalid drives were corrupting a byte in memory.
- Added WfM 2.0 support for BIS (Boot Integrity Services).
- Fixed CMOS corruption issues.
- Fixed issue where the system would have invalid CMOS if the user would exit out of SETUP after a bad CMOS checksum error.
- Fix possible hang in setup with seven character passwords.
- Fixed problem where the system will hang if invalid settings are present in CMOS.
- Added BBS (BIOS Boot Specification v1.01) Replaces AMI Flex Boot.
- Made boot device selection more user friendly.
- Added RPD-specific requirements
- Fixed issues with Option ROMs with sizes >= 64KB (Creative TNT2).
- Fixed issue where system would not boot in the setup default boot order if one of the default questions pointed to a non-existent boot device.
- Fixed problem where occasionally, mouse will randomly open windows coming out of Suspend.

- Added fix for the Gate A20 control with USB_LEGACY_ENABLE being set as Auto.
 - Updated code to program the soft audio and soft modem PCI IDs.
 - Fixed issue where POST reports keyboard detected w/ no keyboard attached.
 - Removed "Hit <F2> if you want to run setup" message at POST if there is a POST error message requiring to go into SETUP.
 - Add interrupt-driven keyboard support during POST.
 - Fixed issue where USB Legacy was not working when doing a shutdown to MS-DOS from Windows 98.
 - Fixed missing memory, floppy controller failures, etc, when an AMR was present in the system.
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- Fixed problem where Windows display Floppy Drive A: even when it is disabled in Setup.
 - Added code to initialize bit 32 of the BIOS characteristics QWORD in the type 0 SMBIOS structure. This is used to indicate to an OS application whether the OPSD splash logo was displayed during POST.
 - Fixed issues related to incorrect AMR detection.
 - Fixed a problem where the board would go into setup every time mfg. mode was set.
 - Added support for processor frequencies through 933MHz.
 - Fixed SMBIOS issues.
 - Fixed a problem where you could not enter setup using a USB keyboard if quick boot was set to enabled.
 - Fixed problem where occasionally, keyboard or mouse will not wake up the system from Suspend.
 - Fixed a problem that caused an APM wakeup from modem even after the wakeup event is disabled by the OS.
 - Enhanced ICH BO workaround for RTC UIP glitch to correct various anomalies observed with RTC.COM, ITECTGS.EXE, and PCDR.EXE.
 - Update to GMCH BIOS Spec Update 1.0
 - Updated the 810 RCOMP algorithm for 810E and 810 GMCH A3.
 - Updated GMCH register settings to the latest values recommended by PCD
 - Fixed issue where forcing the loading of CMOS defaults on next boot after flashing the BIOS was causing a bad CMOS checksum error.
 - Fixed problem where Windows NT will hang during installation when APM is set to disabled in BIOS Setup.
 - Fixed testing issues with SMBIOS Memory Types 16 - 20.
 - No USB reset on resume from S3 sleep state
 - Fixed a problem where the f000 area was writeable after the BIOS returned control to the OS after a S3 wake up.
 - Fixed a problem where the Serial port B would default to IRQ 4 instead of IRQ 3, if the serial port B default was set to Auto.
 - Added Maintenance screen option to Clear BIS Credentials.
 - Fixed Setup Option Corruption when Loading Custom Defaults in Setup when not having previously saved them.
 - Fix the problem where '+' and '-' key will hang the system in IDE configuration in setup
 - Fixed issue where the range of CMOS checksummed was not fixed from BIOS to BIOS.
 - Fixed issue where BIOS defaults were not being loaded when an invalid CMOS Checksum error was found by the BIOS.

P06-0013

- Fix where Suspend to RAM does not work with P05.

P05-0012

- Updated to Video BIOS 2.10 dated 07/09/1999
- Updated GMCH settings for GTL compensation registers

P04-0011

- Fixed problem where ATAPI Tape Drives do not show up in POST/SETUP Screen.
- Correctly enabled UDMA functionality for UDMA capable CD-ROMS.
- Fixed problem where Print Screen function will print unknown characters from setup.
- Added support to display "Invalid Password-System Halted" when the user incorrectly enters a SETUP password three times consecutively.
- Fixed a problem where the setup option for disabling Wake On Modem , Wake On LAN did not work.
- Fixed problem where Wake On Lan does not work for On-board LAN in APM Mode.
- Fixed problem where <CTRL-ALT-DEL> went into setup.
- Fixed issue where DMI was returning an invalid CPU bus speed.
- Fixed issue where non-66Mhz FSB processors would hang after loading & saving Setup defaults.
- Fixed issue where the power LED will not light immediately after system power-up.
- Fixed problem where the PCD ATA-66 driver does not recognize ATA-66 drives.
- Fixed problem where EDDSTEST fails because int 13h function returns valid code even if DL is set to invalid drives.
- Fixed issue where system will hang during POST if a slave device is connected alone to either IDE connector.
- Fixed issue where POST hangs in checkpoint 2Dh after coming out of AC-Loss or Reset.
- Fixed issue where PS/2 port swapping was not working correctly for certain keyboards.
- Fixed the issue where "Memory Size Decrease" error at POST is not reported for all memory sizes installed on the system.
- Added feature to display POST messages when PS/2 Keyboard or Mouse is not found.
- Added feature to display "Scanning Option ROMs..." during POST when a device Option ROM is detected.
- Fixed issue where BIOS is not in Big Real Mode before entering Option ROM scan which is a requirement for PMM compliance.
- Enhanced USB Legacy Support to work with both ICH and ICH0.
- Added the CPU Setup items in Maintenance Mode for 86A.

P03-0010

- Fixed the Memory Buffer Strength for heavy loaded Memory Configuration.
- Added support for B1 Stepping of ICH.

P02-0009

- Finalized ICH B0 workaround for RTC UIP glitch.
- Added feature to control behavior of the power button via the DMI switchboard.

- Fixed problem where <CTRL-ALT-DEL> went into setup.
- Fixed issue where non-66Mhz FSB processors would hang after loading & saving Setup defaults.
- Modified RTC UIP workaround on ICH B0 to not buffer the century byte. Since reading UIP low is not a prerequisite for reading the century byte, the buffered method is deemed too risky.
- Fixed issue where the power LED will not light immediately after system power-up.
- Added feature to display POST messages when PS/2 Keyboard or Mouse is not found.
- Added feature to display "Scanning Option ROMs..." during POST when a device Option ROM is detected.
- Fixed issue where BIOS is not in Big Real Mode before entering Option ROM scan which is a requirement for PMM compliance.
- Enhanced USB Legacy Support to work with both ICH and ICH0.
- Fixed issue where RTC was corrupted when setup stayed idle in main page

Beta 8

- Fixed problem where ATAPI Zip drive wont boot as hard drive
- Fixed issue where POST is not recognizing an invalid CMOS checksum error on boot-up
- Fixed issue where INT13 FN 0C was failing DISKTEST.EXE test.
- Fixed issue where INT13 FN48 was returning bad CHS data for greater than 8.4GB hard disk drives.
- Added workaround for glitch in ICH B0 on RTC UIP bit.
- Fixed S1 sleep state issues.
- Fixed issue to support DFT Rule 3.1.3 to set a default valid date/time when the RTC date/time is invalid.
- Fixed problem where Amount of Memory and Keyboard Status are not displayed after coming out of Setup or when a POST Failures happen.
- Fixed the problem where the user's access level not being reset to be FULL access when supervisor's pwd has been cleared. Reset CMOS token Q_DENY_SETUP to be 3.

P01

- Fixed problem where floppies could not be formatted consecutively in DOS 7.10.
- Fixed LS-120 drive/120M media format failure.
- Changed order of options for USB enable question.
- Added Fix for the OS/2 Warp 4.0: APM Suspend from Start Menu.
- Fixed failure to wake up from standby and suspend in DOS.
- Fixed APMTEST failure under POST-HASTE II.
- Added feature for loading SETUP defaults automatically on the next system reboot.
- Fixed problem where Wake on PME will hang the system at checkpoint_27h.
- Fixed issue where Processor Speed was being set to a default state after loading defaults in Setup.
- Fixed audio pop.
- Fixed SPD accessing routines.
- Added feature to install SIO MPU-401 and Game Port on Soft Audio SKU.
- Added support for certain multimedia keyboards.
- Fixed POST hang condition on warm reboot with certain auxiliary devices attached to the system.

- Fixed "Pause on POST Errors" functionality.
 - Fixed problem where system would stop on soft errors during manufacturing mode.
 - Fixed problem where the PIO mode could not be set in any other modes except AUTO.
 - Added a Setup option for the S1/S3 sleep state. ACPI implementation according to the Sleep state selection.
 - Fixed DMI display of information on the POST screen.
 - Fixed issue where LAN device is displayed in Setup in SKUs where LAN is not populated.
 - Added support for selecting AGP or PCI as the primary boot video adapter.
 - Fixed boot order when only Network is enabled and others disabled.
 - Enabled BIOS support for IDE SMART drives.
- Fixed problem where \$PIR table is incorrectly reporting PCI Interrupt Router DevFun and Compatible ID.
 - Fixed problem with SMBIOS memory speeds.

B-0006

- Fixed problem where Network Boot does not work.
- Fixed "Press F1 to" string and Quick/Quiet boot order.
- Added Memory structures to SMBIOS.
- Fixed error messages in the case of failure to boot from any device.
- Fixed problem where Adaptec 2940 will hang upon entering its Setup Menu.
- Fixed all BEL DMITEST failures.
- Enabled RTC alarm as wakeup event in Soft Off.
- Enhanced system performance in 3D WinBench with on-board video.
- Fixed issue where the "Last State" option for "After Power Failure" was not functioning when the system is shut off during early portions of POST.
- Fixed the System hang at post code A6 with ES1373 card after resume from STR.
- Fixed hang at VBIOS screen on resume with 2 USB devices installed
- Fixed problem where 3-mode FDD does not work.
- Fixed problem where NT Server will hang on the second floppy installation.
- Fixed to allow Unattended start to be accessed in Limited Access.

B-0005

- Enhanced system performance in 3D WinBench with on-board video.
- Fixed AMR detection. Added soft modem Setup option.
- Changed functionality of audio Setup option from 'None'/'Soft Audio'/'External Audio' to 'Enabled'/'Disabled'.
- Fixed problem where POST hangs when 16 MB of memory is installed and Quiet Boot is enabled
- Added support for usable OEM specific Boot Block hooks.
- Removed 'Floppy B' option from ADVANCED | DISKETTE setup screen.
- Fixed problem where some of the untested boards hang in POST/Setup
- Added weak/strong hook routine after BIOS port 80 checkpoint
- Modified the "Load Setup Defaults" option to skip initialization of certain fields like passwords.
- Fixed problem where a memory space used by PCI device with Option ROM is declared in ESCD

- Removed CPU Throttling capability in ACPI Mode.
- Fixed issue where a password prompt is randomly offered during boot even though no password is installed.
- POST does not report a keyboard not functional error when stuck.
- Fixed hang during Option ROM initialization and added boot support from onboard LAN.
- Changed the line on which we print the "Press <F1>" and "Entering Setup" messages to the bottom of the screen.
- Added support for usable OEM specific Boot Block check point hooks.
- Added support to GMCH0 to be able to use same Video BIOS.
- Allocate and clear memory for Adaptec 3940 initialization.
- Fixed protected mode access to SMBIOS.
- Added OEM-specific hooks for before and after APM suspend.
- On wake from S1, System sometimes goes to S5 instead of Resuming.
- Fixed ACPI STR hang, immediate wake from STR, and Added PS2 Mouse/Kbd wake from S1 sleep state. Added BIOS work-arounds for the 810 video problems.
- Fixed Unreported Memory with Firmware Hub.
- Fixed problem in Setup that prevents the Supervisor from changing their old password.

B-0004

- Fixed Unreported Memory/IO issue in Windows 98 ACPI WHQL tests
- Added support for Fab B and C Memory Buffer Strength Programming.
- Changed Setup Audio Type default to External Audio.

B-0003

NOTE! Program Boot Block and Main Block at the same time. Boot a floppy with the files in the ZIP file and the autoexec.bat will do automatically do it.

- Added support for Memory Buffer Strength for GMCH A2 Stepping
- Added support to turn off unused clocks in single-sided DIMMs
- Removed unnecessary processor POST message.
- Fixed problem where Memory Testing (Quick Boot=disabled) will cause a Memory Failure.
- Fixed Intermittent hang in Quiet Boot Enabled.
- Change MFG default for Quiet Boot to Disabled.
- Fixed problem where the system will hang when no keyboard is attached.
- Added a bracket in Setup selectable fields

B-0002

- Initial Release for AMI Core 632

B-0001

- Initial Release

Known Errata with This Release

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