AMIBIOS8 ROM Utility User Guide

AFUWIN

Document Revision 1.0.1 – Aug 28, 2009

NDA REQUIRED
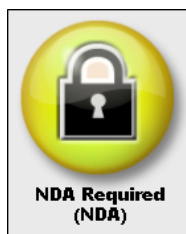
For Additional Information

Call American Megatrends BIOS Sales Department at 1-800-828-9264 for additional information.

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Disclaimer

Revision Information

Date	Rev	Description of Changes
09/5/13	1.0.0	Initial Document.
09/8/28	1.0.1	1. Add Windows 7 support. 2. Add /ME and /MEUF usage description.

Overview

AFUWIN is an updating system BIOS utility with command line and GUI interface. It has same parameters and behavior as AFUWIN, and further, GUI feature starting from v4.10 can provide you a friendly environment to visualize BIOS update procedure. By the way, do not forget that target board MUST be *AMIBIOS* system while using this utility.

Features

This utility offers the following features:
• Small executable file size
• Quickly update
• Clear updating information and status
• Fully compatible with previous version (See [Appendix B AFUWIN v3.xx Commands](#))

Requirements

Supported Operating System

AFUWIN Utility is supported in following operating system:
• Microsoft® Windows® 98
• Microsoft® Windows® ME
• Microsoft® Windows® 2000
• Microsoft® Windows® NT 4.0
• Microsoft® Windows® XP/XP64
• Microsoft® Windows® PE
• Microsoft® Windows® Vista 32/64
• Microsoft® Windows® PE 2.0 x64 (AFUWINx64.EXE)
• Microsoft® Windows® 7 32/64

BIOS Requirements

System BIOS should have the followings:
• AMIBIOS CORE version 8.xx.xx.
• *SMIFlash eModule* with "8.00.00_SMIFlash-1.00.07" label or later.
• *Token: SDSMGR_IN_RUNTIME = ON*.
• *Token: SMI_INTERFACE_FOR_SDSMGR_FUNC = ON*.

Operating System Driver Requirements

Following drivers for different operation system are required by this utility:

- *UCOREVXD.VXD*   Driver for Microsoft® Windows® 98/ME
- *UCORESYS.SYS*   Driver for Microsoft® Windows® NT/2000/XP/PE
- *UCOREW64.SYS*   Driver for Microsoft® Windows® XP64

Getting Started

Installation

Copies *AFUWIN.EXE*, *AFUWINx64.EXE (for Microsoft Windows PE 2.0 x64)*, *UCOREVXD.VXD*, *UCORESYS.SYS* and *UCOREW64.SYS* to any storage location accessible by the host system and then run **AFUWIN** in command prompt. Remember that three files MUST be in same directory. For launching GUI mode, you can just double-click on the icon.

Usage

For previous usage, see Appendix B AFUWIN v3.xx Commands to know details.

AFUWIN <BIOS ROM File Name> [Option 1] [Option 2]……….
       Or
AFUWIN <Output BIOS ROM File Name> <Commands>
       Or
AFUWIN /M<MAC Address>
       Or
AFUWIN /MAI

BIOS ROM File Name
The mandatory field is used to specify path/filename of the BIOS ROM file with extension.

Commands
The mandatory field is used to select an operation mode:
- **/O**   Save current ROM image to file
- **/U**   Get and display ROM ID from ROM file
- **/Ln**   Refer to option: **/Ln**
- **/M <MAC Address>**   Refer to option: **/M**
- **/MAI**   Display current system and ROM file's MA
- **/HOLE**   Update specific ROM hole by given name
- **/HOLEOUT**   Save specific ROM holedata by given name
- **/D**   Verification test of given ROM file without flashing
- **/EC**   Flash EC firmware BIOS (Refer to OFBD spec)
                              Path: $BIOS/Corebin/800/ROMUtils/On Flash Block Description Specification.PDF.

Sample Code Module Path:
$BIOS/Examples/On Flash Block Description

- **/NCB**   Flash NCB data by given name
- **/NCBOUT**   Output NCB data by given name
- **/C**   Destroy CMOS checksum

Options

The optional field used to supply more information for flashing BIOS ROM.
Following lists the supported optional parameters and format:

- **/P**   Program main bios image
- **/B**   Program Boot Block
- **/N**   Program NVRAM
- **/C**   Destroy CMOS after update BIOS done
- **/E**   Program Embedded Controller block if present
- **/K**   Program all non-critical blocks
- **/Kn**   Program n'th non-critical block only (n=0 – 7)
- **/Q**   Quiet mode enable
- **/REBOOT**   Reboot after update BIOS done
- **/X**   Do not check ROM ID
- **/S**   Display current system's BIOS ROM ID
- **/Ln**   Load CMOS default (n=0 - 1)
  - L0: Load current CMOS optimal settings
  - L1: Load current CMOS failsafe settings
  - L2: Load CMOS optimal settings from ROM file
  - L3: Load CMOS failsafe settings from ROM file
- **/M<MAC Address>** Update BootBlock MAC address if exists
- **/R**   Preserve all SMBIOS structures during NVRAM programming
- **/Rn**   Preserve specific SMBIOS structure during NVRAM programming
- **/ECUF**   Update EC BIOS when newer version is detected.
- **/ShutDown**   Shutdown system after programming.
- **/clnevnlog**   Clean Event Log.
- **/DeDftCfg**   Delete all default settings from BIOS.
- **/-Command Name**   Delete certain command's default setting. [OEM Uses Only.]
- **/MEUF**   Update Intel ME ignition firmware.
- **/ME**   Update entire Intel ME region.(WinPE only)

Rules
Any parameter encolsed by < > is a mandatory field.   **Any parameter enclosed by [ ] is an optional field.**   <Commands> cannot co-exist with any [Options].   - Main BIOS image is default flashing area if no any option present.   [/**C**], [/**Q**], [/**REBOOT**], [/**X**], [/**Ln**] and [/**S**] will enable [/**P**] function automatically.   - If [/**B**] present alone, there is only the Boot Block area to be updated.   - If [/**N**] present alone, there is only the NVRAM area to be updated.   - If [/**E**] present alone, there is only the Embedded Controller block to be updated.   - If [/**E**] and **[/ECUF]** co-exist, **[/ECUF]** will be no function.   - If [/**Kn**] present alone, there is only non-critical block to be updated.   - When [/**Ln**] is co-exist with [/**C**], [/**C**] will be no function.   [/**M**] can be used as a command for backward compatible.

Note : Running AFUWIN under command prompt directly will display help message.

Examples

Examples on how to update BIOS using the command prompt are shown in following:

- **Save current BIOS ROM to file**
  AFUWIN <BIOS ROM File Name> /O
- **Get and display ROM ID from BIOS ROM file**
  AFUWIN <BIOS ROM File Name> /U
- **Update main BIOS image only**
  AFUWIN <BIOS ROM File Name>
     Or
  AFUWIN <BIOS ROM File Name> /p
- **Update Boot Block only**
  AFUWIN <BIOS ROM File Name> /B
- **Update NVRAM only**
  AFUWIN <BIOS ROM File Name> /N
- **Update Embedded Controller Block only**
  AFUWIN <BIOS ROM File Name> /E
- **Update Embedded Controller Block if newer version is detected**
  AFUWIN <BIOS ROM File Name> /ECUF
- **Update 2nd non-critical block only**
  AFUWIN <BIOS ROM File Name> /K2
- **Update main BIOS image, Boot Block and NVRAM at once**
  AFUWIN <BIOS ROM File Name> /P /B /N
- **Update whole BIOS ROM**
  AFUWIN <BIOS ROM File Name> /P /B /N /C /E /K

- **Update whole BIOS ROM and load current CMOS optimal settings**
  AFUWIN <BIOS ROM File Name> /P /B /N /C /E /K /L0
- **Update whole BIOS without checking ROM ID**
  AFUWIN <BIOS ROM File Name> /P /B /N /C /E /K /X
- **Update whole BIOS with quiet execution**
  AFUWIN <BIOS ROM File Name> /P /B /N /C /E /K /Q
- **Update whole BIOS in quiet mode and REBOOT quietly**
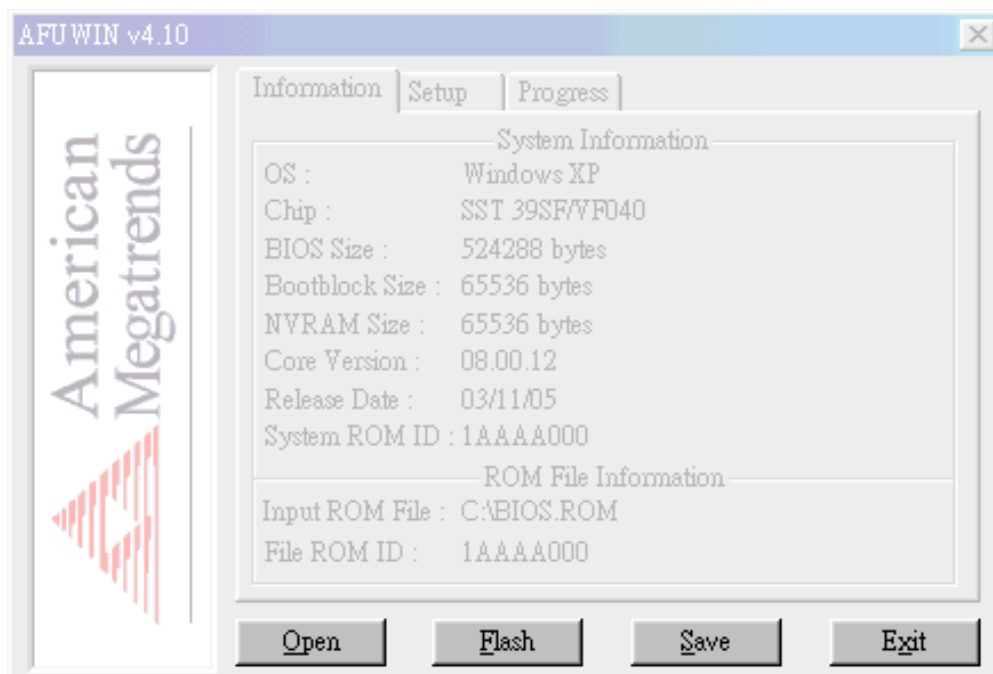 *AFUWIN <BIOS ROM File Name> /P /B /N /C /E /K /Q /REBOOT*
- **Update BootBlock MAC address**
  AFUWIN /M<MAC Address>
- **Update whole BIOS and BootBlock MAC address**
  AFUWIN <BIOS ROM File Name> /P /B /N /C /E /K /M<MAC Address>
- **Update whole BIOS except existing SMBIOS structures**
  AFUWIN <BIOS ROM File Name> /P /B /N /C /E /K /R
- **Update whole BIOS but preserve SMBIOS type 0 and 11**
  AFUWIN <BIOS ROM File Name> /P /B /N /C /E /K /R0 /R11
- **Update dedicate ROM Hole Area**
  AFUWIN <ROM Hole File Name> /Hole:Name
- **Update dedicate NCB Area**
  AFUWIN <NCB File Name> /NCB:Name
- **Output dedicate ROM Hole File**
  AFUWIN <Output ROM Hole File Name> /HOLEOUTt:Name
- **Output dedicate NCB File**
  AFUWIN <Output NCB File Name> /NCBOUT:Name
- **Cancel Embedded AFU default commands**
  - Below sample cancels B & P commands if BIOS has embedded B & P commands in OFBD.
  AFUWIN <BIOS ROM File Name> /-B /-P
  Notice: if /p & /b are set as default command only and /-B /-P commands are issued then P command will still be issued because if none of command is issued then /p will still issue as AFU default.
- **Cancel ALL Embedded AFU default commands**
  AFUWIN <BIOS ROM File Name> /DeDftCfg

Main Window

Buttons

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AFU WIN v4.10   ×

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Information | Setup | Progress

System Information

OS :   Windows XP
Chip :   SST 39SF/VF040
BIOS Size :   524288 bytes
Bootblock Size : 65536 bytes
NVRAM Size :   65536 bytes
Core Version :   08.00.12
Release Date :   03/11/05
System ROM ID : 1AAAA000

ROM File Information

Input ROM File : C:\BIOS.ROM
File ROM ID :   1AAAA000

Open   Flash   Save   Exit
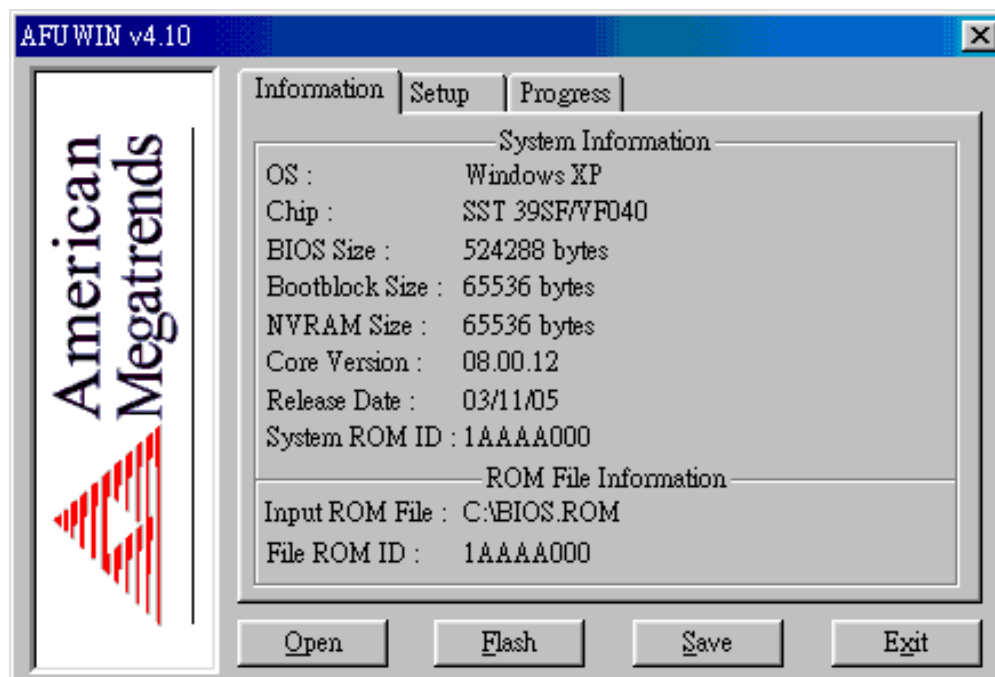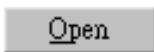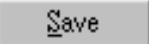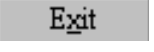
Open	Click this button to search for BIOS ROM file from any disk drive.
Flash	Click this button to starting update BIOS.
Save	Click this button to save BIOS ROM image to disk drive.
Exit	Click this button to exit this program.

Function Frame

Information Tab

This tab displays system BIOS information for your reference before flashing BIOS.

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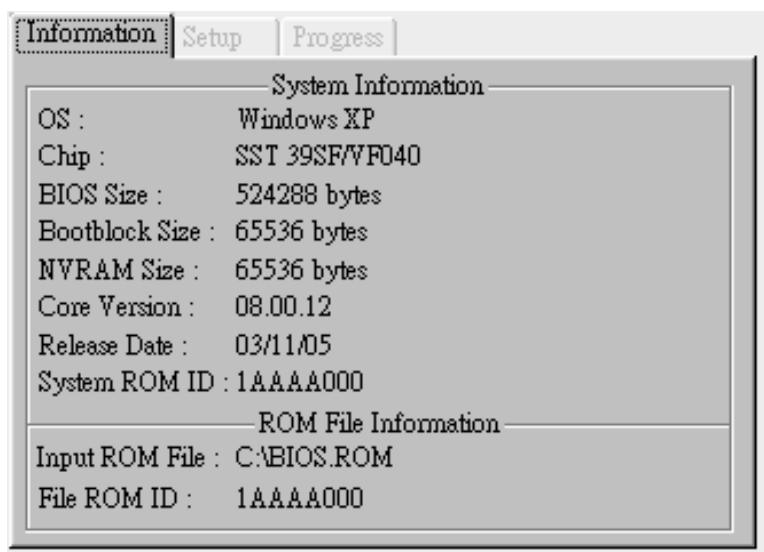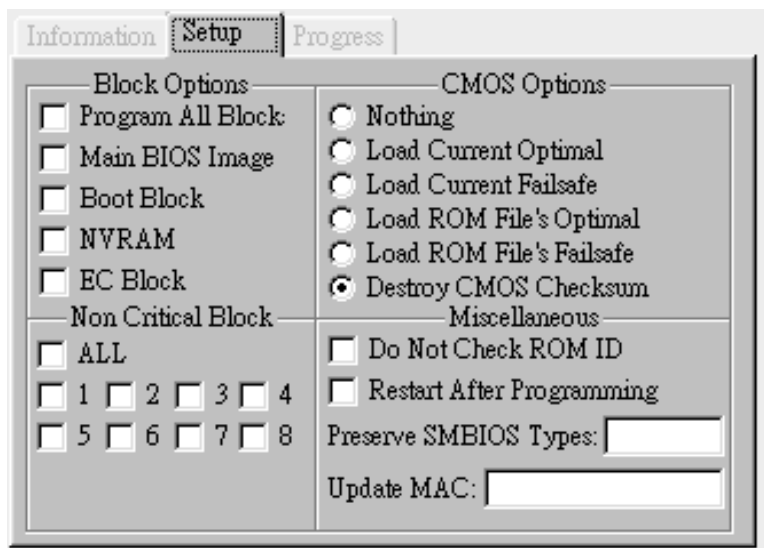
Field

Name	Description
OS	This field displays current OS version.
Chip	This field displays current flash part on the system.
BIOS Size	This field displays current BIOS ROM size.
Bootblock Size	This field displays current BIOS BootBlock size.
NVRAM Size	This field displays current BIOS NVRAM size.
Core Version	This field displays current AMIBIOS CORE version.
Release Date	This field displays current BIOS release date.
System ROM ID	This field displays current system BIOS ROM ID.
Input ROM File	This field displays BIOS ROM image file name/path where will be used to replace old one.
File ROM ID	This field displays ROM ID in given BIOS ROM image file.

Setup Tab

This tab allows you to change the settings for flashing BIOS.

Field

Block Options	
Name	**Description**
Program All Block	Enable this option to flash all programmable blocks
Main BIOS Image	Enable this option to flash Main BIOS block
Boot Block	Enable this option to flash Boot Block
NVRAM	Enable this option to flash NVRAM block
EC Block	Enable this option to flash EC block

CMOS Options	
Name	**Description**
Nothing	Select to do nothing to CMOS after flashing.
Load Current Optimal	Select to load optimal CMOS setting from current system after flashing.
Load Current Failsafe	Select to load failsafe CMOS setting from current system after flashing.
Load ROM File's Optimal	Select to load optimal CMOS setting from new BIOS after flashing.
Load ROM File's	Select to load failsafe CMOS setting from new

Failsafe	BIOS after flashing.
Destroy CMOS Cheksum	Select to destroy CMOS checksum after flashing. This is default setting in CMOS Option block.

Non Critical Block	
Name	**Description**
All	Select to update all Non Critical Blocks
1 – 8	Select specific Non Critical Block to update

Miscellaneous	
Name	**Description**
Do Not Check ROM ID	Select to skip ROM ID check before updating BIOS
Restart after Programming	Select to restart system after updating BIOS
Preserve SMBIOS Type	This field allows you to preserve SMBIOS types while BIOS updating. The types string must be decimal-digit and separated by a space(' ') character. For convence, you can strike 'A' key as first character to select all SMBIOS structures at once.
Update MAC	This field is used to change BootBlock MAC address. It MUST be hexadecimal-digit string.

Progress Tab

This tab displays the updating status.
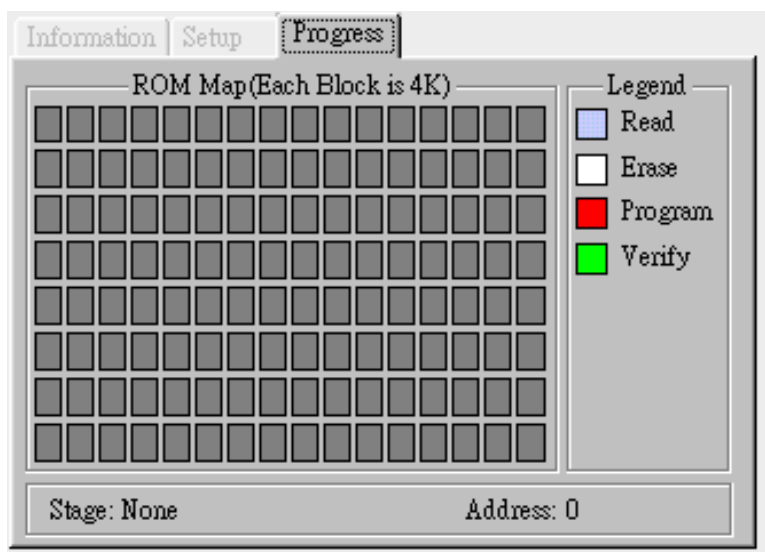
Field

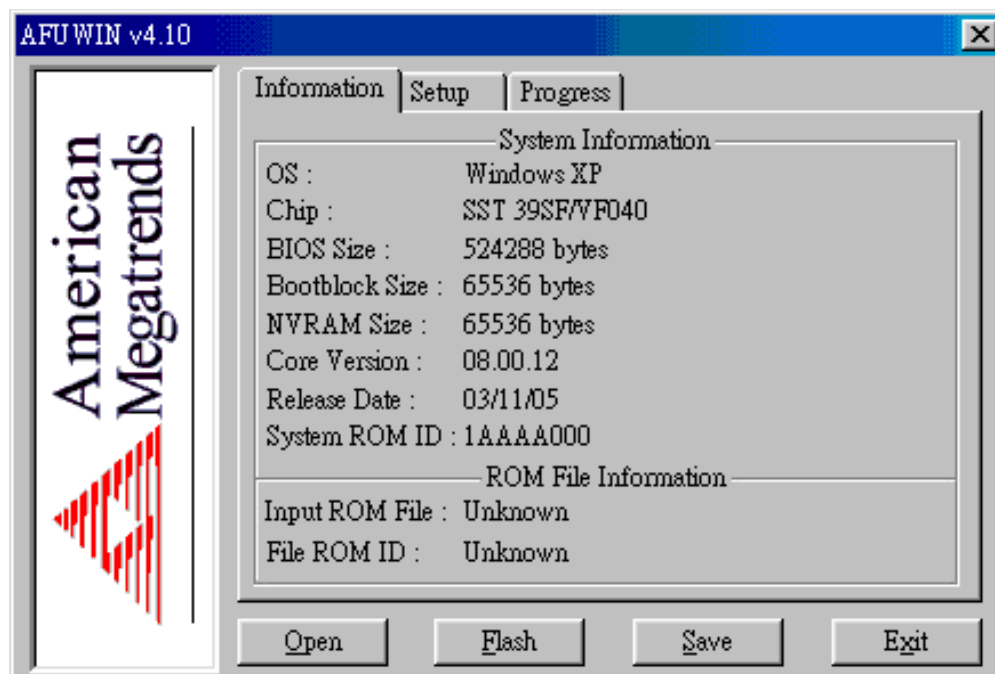| Name	Description
ROM Map	This area displays current updating status.
Legend	This area illustrates the meaning of color in ROM MAP area.
Stage	This field displays the stage of updating BIOS.
Address	This field displays the address where block is under working.

Functions

To launch into AFUWIN with GUI mode, you can double-click the executable file icon to open the operating window:

AFU WIN v4.10

Information | Setup | Progress

System Information

OS : Windows XP
Chip : SST 39SF/VF040
BIOS Size : 524288 bytes
Bootblock Size : 65536 bytes
NVRAM Size : 65536 bytes
Core Version : 08.00.12
Release Date : 03/11/05
System ROM ID : 1AAAA000

ROM File Information

Input ROM File : Unknown
File ROM ID : Unknown

Open | Flash | Save | Exit

Usually, system BIOS information will be displayed first, but you may see a pop-up dialog if the system does not support AMIBIOS update function. After open this program successfully, you can refer to following steps to finish the operation what you need:

Saving system BIOS ROM image to file

1. Press **<Save>** button to open file dialog box.
2. Select path and input a file name.
3. Click on OK button to save system BIOS ROM image into specific file.
4. Press **<Exit>** button to exit this program.

Flashing system BIOS with given file

1. Press **<Open>** button to search for BIOS ROM image file from any disk driver and load it into memory.
2. Switch to *Setup Tab* to check and change necessary settings.
3. Press **<Flash>** button to start the operation.
4. *Progess Tab* will be switched automatically and display the programming status.
5. After BIOS updated, you can press **<Exit>** button to exit this program or system will restart automatically if the **Restart After Programming** option enabled.

Error Code List

Error Number	Description
00h	No error

01h	Unknown command
02h	Can't open ROM ID file
03h	ROM ID file is not a ROM file
04h	Invalid MAC address
05h	Invalid retry count
06h	System doesn't support MAC programming
07h	This program can not run under this operating system
08h	Flash part is not supported
09h	Problem extracting module from ROM file
0Ah	Can not analyze ROM file. ROM file may be corrupted
0Bh	NCB error
0Ch	Invalid option
0Dh	BIOS does not support AFU
0Eh	ROM file size incorrect
0Fh	File ROM ID incorrect
10h	Bootblock error
11h	Loading driver
12h	Unloading driver
13h	Invalid NCB
14h	Closing memory manager
15h	Mapping BIOS data buffer error
16h	Problem allocating memory
17h	Problem freeing memory
18h	Problem allocating BIOS buffer
19h	Problem freeing BIOS buffer

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Appendix B : AFUDOS v3.xx Commands

Usage : AFUDOS /i<ROM File Name> [/o<Save ROM File Name>] [/n] [/p[b][n][c][e]]
[/s] [kN] [/c[N]] [/q] [/h] [/t] [/u[ROM File Name]]
Following table lists the description of previous version of AFUDOS commands.

Command	Description
/n	Do not check ROM ID
/pbnce	p – Program main BIOS b – Program boot block n – Program NVRAM c – Destroy system CMOS e – Program embedded controller block
/k	Program all Non-Critical Blocks only
/kN	Program N'th Non-Critical Block only (N = 0 – 7)
/s	Leaves signature in BIOS
/q	Silent execution
/h	Print help
/t	Display current system's ROM ID
/c	Program main BIOS and all Non-Critical Blocks
/cN	Program main BIOS and N'th Non-Critical Block (N = 0 – 7)
/srb	Force REBOOT after programming done
/d	Compare ROM file (Skip flashing)
/o<ROM File Name>	Save current system BIOS ROM into disk
/u<ROM File Name>	Display ROM file's ROM ID