FOREX 486

MAINBOARD MANUAL

FOREX 486

80486-20/25/33/50
(Rev.VL-1A 421A/422)

DISCLAIMER

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CHAPTER 1 INTRODUCTION

SYSTEM OVERVIEW

The FOREX 486 Cache system board is 2/3 baby-sized,fully PC/AT compatible and offers outstanding performance and features.

With 64K, 128K, or 256K cache memory on board this system board is really a high speed machine that is well suited for building advanced personal computers or workstations.

The FOREX 486 Cache system board is designed with the FRX46C421A and FRX46C422 chipset which are highly integrated.With this chipset,there are only a few discrete devices required,which allows 2 memory banks to be placed on the board.The size of the memory can be scaled from 1 MB up to 32 MB.

FEATURES

The FOREX 486 Cache system board supports (or includes) the following features:

* Intel 80486DX CPU at 25/33/50 MHz,Intel 80486DX2 at 50/66 MHz

* FOREX 486 chipset,FRX46C421A and FRX46C422, which contain:
  Cache Controller - 0 wait state memory access if cache hit
  Memory Controller - fast page mode operation
  Bus controller - fully PC/AT compatible

* Direct mapped cache memory, upto 256KB
  SRAM speed

  For Double Bank (64K/256K)

Clock(MHz)	TAG SRAM	DATA SRAM
20	35 ns	35 ns
25	30 ns	30 ns
33	20 ns	25 ns
50	15 ns	20 ns

  For Single Bank(128K)

Clock(MHz)	TAG SRAM	DATA SRAM
20	35 ns	35 ns
25	30 ns	25 ns
33	20 ns	20 ns
50	20 ns	15 ns

* Support Intel 487SX numerical co-processor

* 2 memory banks on board
  Supports 1 MB upto 32 MB memory size
  DRAM speed:fast page mode, 80 ns or 70 ns

* Software bus speed selection for maximum compatibility with add-on cards

* Dual processing speed selection via software or hardware switch

  Turbo mode:<CTRL><ALT><+>
  Enable the internal 8KB cache of Intel 80486

  Non-turbo :<CTRL><ALT><->
  Disable the internal 8KB cache of Intel 80486

* Supports one cacheable/non-cacheable, one local/non_local memory regions

* Software-controlled shadow RAM for system and/or video BIOS.

* Two 32-bit VESA local bus slot,five 16-bit expansion slots, one 8-bit expansion slot

* Real time clock

* Hardware turbo switch

* LEDs for power and turbo mode

SYSTEM PERFORMANCE

Clock oscillators used for the system performance measurement

25 MHz: O.S.C. 25,000 MHz 33MHz: O.S.C. 33.333 MHz
50 MHz: O.S.C. 50,000 MHz

CHAPTER 2 HARDWARE CONFIGURATION

Before the system is ready to operate, the hardware must be configured to allow for various functions within the system. To configure the FOREX 486 Cache system board is a simple task, only a few jumpers, connectors, and sockets needs to be selected. Please refer to system board layout in Chapter 4 for the locations.

CACHE MEMORY SOCKETS

The FOREX 486 Cache system board supports 2 banks of SRAM which provides either 64K,128 or 256K of cache memory.The following table lists the detailed information.

Cache Size	Bank 0	Bank 1	Tag
64k	four 8Kx8	four 8Kx8	one 8Kx8
128k	four 32Kx8		one 8Kx8
256k	four 32Kx8	four 32Kx8	one 32Kx8

The corresponding bank to part indentification are as follows:

Bank 0 - U31, U32, U33, U34
Bank 0 - U22, U23, U24, U25
Tag - U26

DRAM SIMM SOCKETS

The FOREX 486 Cache system board will support 2 DRAM banks, Bank 0 and Bank 1 in SIMM sockets, on board.

With the use of 256Kx9,1Mx9,or 4Mx9 DRAM modules, 1M and upto 32 M of local memory can be attained. Please refer to the following table for the detailed installation.

memory size		bank 0	bank 1
1M	==>	256K	
2M	==>	256K	256M
5M	==>	256K	1M
20M	==>	1M	4M
4M	==>	1M	
8M	==>	1M	1M
16M	==>	4M	
32M	==>	4M	4M

The corresponding part reference are as below:

Bank 0 - SIM 1, SIM 2, SIM 3, SIM 4 (SIMM SOCKET)
Bank 1 - SIM 5, SIM 6, SIM 7, SIM 8 (SIMM SOCKET)

CONNECTORS

A connector is two or more pins that are used to make connections to the system standard accessories(such as power,battery,etc.).
The following is a list of connectors on board, as well as descriptions of each individual connector.

(A) B1 Rechargeable Battery

Pin#	Assignment
1	Battery Positive
2	Ground

(B) JP1 Keyboard

Pin#	Assignment
1	Keyboard Clock
2	Keyboard Data
3	No Connection
4	Ground
5	+ 5V DC

(C) JP2 3.6V External Battery

Pin#	Assignment
1	Battery Positive
2	Internal Battery Positive
3	Ground
4	Ground

Note:IF EXT Battery is not installed, close pin 1 & 2 of JP2 to select internal Battery

(D) JP3 Reset Switch

Pin#	Assignment
1	Reset control
2	Ground

Pin 1 & 2	Function
Open	No action
Closed	Reset

(E) JP4 Power Connector

Pin#	Assignment
1	Power GOOD
2	+ 5V DC
3	+ 12V DC
4	- 12V DC
5	Ground
6	Ground
7	Ground
8	Ground
9	- 5V DC
10	+ 5V DC
11	+ 5V DC
12	+ 5V DC

(F) JP9 Front Panel Key Lock and Power LED

Pin#	Assignment
1	Power LED
2	No Connection
3	Ground
4	Keyboard Lock
5	Ground

(G) JP10 Speakerr

Pin#	Assignment
1	Speaker Data
2	No Connection
3	Ground
4	+5V DC

(H) JP15 Turbo Switch

Pin#	Assignment
1	Pullup(+5V DC)
2	Turbo control

Pin 1&2	Function
Open	Non-Turbo
Closed	Turbo

(I) JP16 Turbo LED

Pin#	Assignment
1	Pullup(+5V DC)
2	Turbo control
3	Pullup(+5V DC)
4	Turbo control

JUMPERS

A jumper is two or three pins which may, or may no be covered by a plastic connector plug. A jumper is used to select different system options.

(A) JP6 IPC 206 Discharge (toreset system CMOS setup)

(B) JP8A,8B,8D,8E Cache MemorySize Select

JP8A & D Pin#	Function
1-2	128K cache memory
2-3	64K/256K cache memory

JP8A & E Pin#	Function
1-2	128K cache memory
2-3	64K cache memory

(C) JP12-13,JP29-30 CPU Select

JP12-13 Pin#	Function
1-2	486DX/DX2 CPU/487SX/P23T PGA CPU
2-3	486SX/486_PQFP CPU

JP29-30 Pin#	Function
1-2	486DX/DX2 PGA CPU
2-3	486DX_PQFP/486SX/487SX/P23T PGA CPU

(D) JP102 Local bus high speed Write wait Selection

JP102 Pin#	Function
1-2	to select 0 WS (< = 33 MHz clock)
2-3	to select 1 WS (> = 33 MHz clock)

(E) JP103 Local bus high speed clock Selection

JP103 Pin#	Function
1-2	to select < = 33 MHz clock
2-3	to select > = 33 MHz clock

CHAPTER 3 SOFTWARE SETUP

Afteer hardware configuration of the FOREX 386/486 Cache system board is completed, and system hardware has been assembled, the completed system may be powered-up.
At this system hardware has been assembled, the completed system may be powered-up.
At this point, software setup should be run to ensure that the system information is correct, and that the configuration registers in FOREX 486 Chipset do not need to be modified. The chipset provides certain features which can be accessed by software setup (such as ssystem speed, bus speed, shadow RAM etc.). This flexibility allows the system to be tallored (via software setup) at anytime to meet the requirements of certain specific operating environments.

Sofftware setup is achieved through BIOS progrramming, although the BIOS from different vendors will have different sequences and displays, the setup elemets or options will be the same. **Please refer to Appendix A for BIOS setup.**

SYSTEM SETUP

The system setup is sometimes called CMOS setup or standard setup. Normally, system setup is needed when the system hardware is not identical with the information contained in the CMOS RAM, or whenever, the CMOS RAM has lost power.

The setup procedure is generally listed below:

(a) Enter into the setup routine
(b) Modify the target option(s)
(c) Save the change(s) and exit from setup
(d) Reboot the system

Basically, the system elements that need to be setup are as follows:

(1) Date and time
(2) Floppy disk quantity and type
(3) Hard disk quantity and type
(4) Amount of memory
(5) Video display type

EXTENDED SETUP

The extended setup is used to modify the contents of the configuration registers in the FOREX 486 chipset. The following is the procedure for extended setup:

(a) Enter into the setup routine
(b) Modify the target option(s)
(c) Save the change(s) and exit from setup
(d) Reboot the system

POWER CON JP4
JP 1
KEYBOARD
B1
JP2
82C206
JP6
X1
SIM8
SIM7
SIM6
SIM5
SIM4
SIM3
SIM2
SIM1
DRAM
BANK 1
DRAM
BANK 0
JP7A
JP7B
JP7C
U38
Y 2
FOREX
460422
80486sx
X2
27512
8
7
4
2
U26 (TAG)
U34 (0)
U33 (0)
U32 (0)
U31 (0)
U25 (1)
U24 (1)
U23 (1)
U22 (1)
JP8B
JP8E
JP8D
JP8A
JP12
JP13
JP30
JP29
FOREX
46C421A
80486
JP3
JP10
JP9
JP15
JP16
JP102
JP103
VESA LOCAL BUS
VESA LOCAL BUS

CHAPTER 5 SPECIFICATIONS

1)CPU INTEL 386DX,486SX, 487SX-20/25 MHz,486DX-25/33/50 MHz or 486DX2 -50/66 MHz,AMD AM386-33/40 MHz 32-bit microprocessor

2)WORD SIZE

* **Data Path** 8-bit, 16-bit, 32-bit
* **Physical Addressing** 20 address lines in real mode
  25 address lines in protected mode
  (32 megabyte address space)

3)CLOCK RATE 20/25/33/40/50 MHz

4)MEMORY

* **EPROM** 512K
* **DRAM** up tO 32 MB
* **SRAM** up to 256 KB (DIP)

5)DIMENSION

* **Length & Width** 8.67 incches X 11.02 inches
* **Height** 3/4 inches with components mounted, but without expansion boards and cables
* **PCB Thickness** 4 layers,005 inches normal
* **Weight** 20 ounces

6)ENVIRONMENT

* **Operating Temperature** 10*C to 40*C,(50*F to 104*F)
* **Required Airflow** 50 linear feet per minute across 80486
* **Storage Temperature** -40*Cc to 70*C,(-40*Ff to 158*F)
* **Humidity** 0 to 90% noncondensing
* **Altitude** 0 to 10,000 feet

APPENDIX A AMI BIOS SETUP

AMI BIOS-GETTING STARTED

When the system is powered on, the BIOS will enter the Power-On Self Test(POST) routines. Normally, the only routine visibble on the screen will be the memory test. Figure A-1 displays the screen which appears when the system is powered on.

```
ROM BIOS <c> 1992 American Megatrends, Inc.
xxxx KB OK

Hit <DEL> if you want to run SETUP




<c> American Megatrends, Inc.
xx-xxxx-xxxxxxx-xxxxxxxx-xxxxxx-xxxx
xxx-x-xxxx-xx-xx-xxxxx-xx-xx-xxx-xx
xxx-x-xxxx-xx-xx-xxxx-xx-xx-xx-x
```

Fig.A-1 Initial Power-On Screen

After the POST routines are completed,the following message appears:

"Hit <DEL> if you want to run SETUP"

To access the AMI BIOS SETUP progrram, press <DEL> key. The screen in Fig. Aa-2 will be displayed at this time.

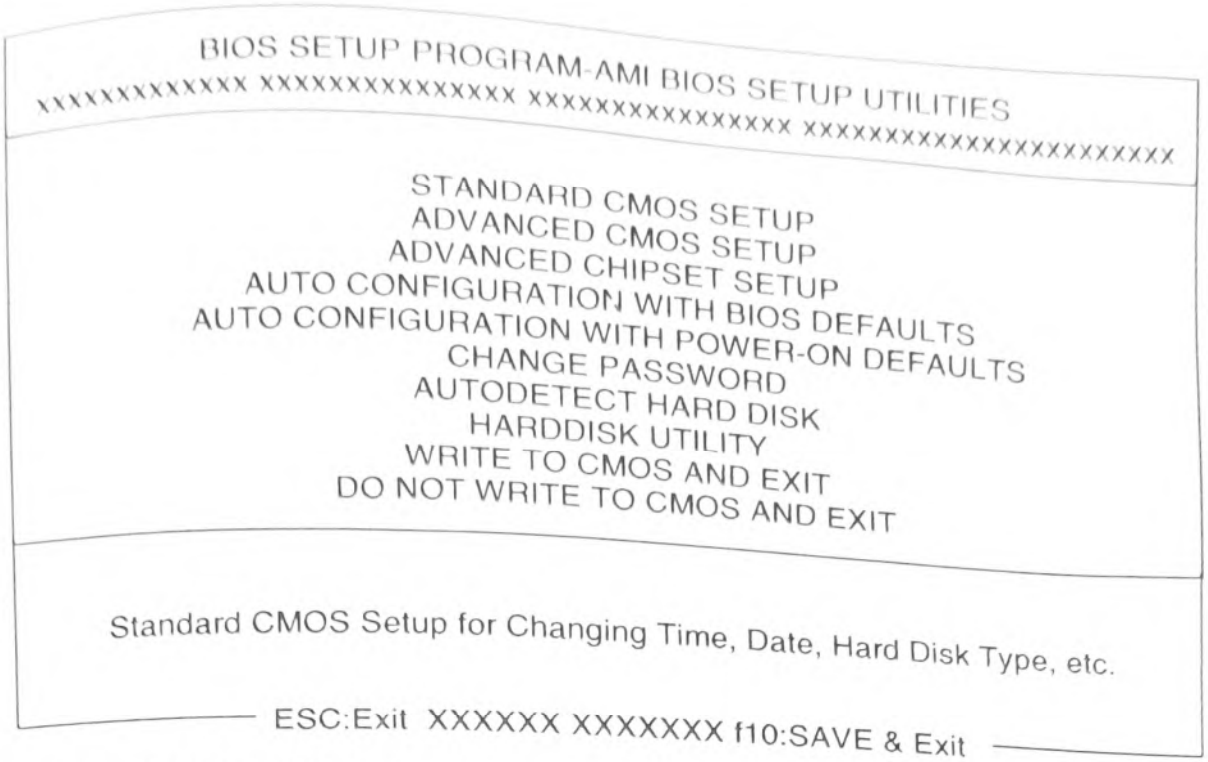

Fig.A-2 BIOS SETUP Menu

Listed below is an explanation of the keys displayed at the bottom of the screens accessed through the BIOS SETUP program:

ESC :Exit to previous screen

ARROW KEYS : Use arrow keys to move cursor to desired selection.

PAGEEUP/PAGEDOWN/CTRL-PAGEUP/CTRL-PAAGEDOWN : Modifty the default value of the options for the highlighted feature. If there are less than 10 available options, the Ctrl-PageUp and PageDown keys function the same as the PageUp and PageDown keys.

F1 :Displays help screen for selected feature.

F2/F3 :Changes background and foreground colors.

F5 : Retrieves the values which were resident when ccurrent setup session was started. These values will be CMOS values if the CCMOS was uncorrupted at the start of the session, or they will be the BIOS Setup default values.

F6 : Loads all features in the Advanced CMOS Setup with the BIOS Setup defaults.

F7 : Loads all features in the Advanced CMOS Setup with the Power-On defaults.

Ff10 : Saves all chaanges made to Setup and exxxits prograam.

By pressing "ENTERR"key, while SSTTANDARD CCMOS SETUP is hightlighted, the following
screen, Fig. A-3, will appear.

BIOS SETUP PROGRAM-STANDARD CMOS SETUP
<C>1992 xxxxxxxxxxxxxxx xxxxxxx xxxxxxx xxxxxxxxxxxxxxx

Date (mn/date/year): Thu, jan 31 1991
Time (hour/min/sec): 15:23:15

Hard disk C :type : 47=USERR TYPEE
Hard disk D :type : Not installed
Floppy drive A: : 1.2MB ,5-1/4"
Floppy drive B: : Not installed
Primary display : Mmonochrome
Keyboaard : Insstalled

Base memory :640KB
Ext.memory :256KB
Cylin Head WPcom Lzone Sec Size
134 7 1314 1314 17 76 MB

Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	1	2	3
3	4	5	6	7	8	9

Month :Jan,Feb,.....Dec
Date :01,02,03.....31
Year :1991,1992.....2099

ESC:Exit.....PU/PD:Modify

Fig.A-3 Sstandard CMOS Setup Screen

This Standard CMOS Setup utility is used to configure the following features:

Ranges or options for each feature will be listed below in prompt box in the lower left corner of the CMOS Setup Screen, as shown in the shaded block in above figgure. And the users can use PAGEUP/PAGEDOWN keys to choose the right option.

Date:Month,Date and Year.

Time:Hour,Minute, and Seecond. Uses 24 hour clock format,i.e. for PM numbers, and 12 to the hour. You would enter 4:30 P.M. as 16:30:00

Hard Disk C and Hard Disk D : Hard disk types from 1 to 46 are standard ones; type 47 is user definabble. The user must enter the hard disk parameters for each drive. The drive types are identified by the following characteristics:

..Type This is the number disignation for a drive with certain identification parameters.

..Cyl. This is the number of cylinders found in the specified drive type.

..Heads This is the number of heads found in the specified drive type.

..WPcom WPcom is the read delay circulitry whicch takes into account the timing differences between the inner and outer edges of the ssurface of the disk platter. The number designates the starting cycclinder of the signal.

..L-zone L-zone is the landing zone of the heads.this number determines the cyclinder location where the heads will normally park when the system is shut down.

..Capacity This is the formatted capacity of the drive based on the follwing formula:
(# of heads)X(# of cycclinders)X(17 secs/cyl.)X(512 bytes/sec)

"**Not Installed**" is available for use as an option. This option could be used for diskless Workstations and **SCSI hard disks**. Type 47 may be used for both hard disks C: and D:.

FLOPPY Drive A and Floppy Drive B:The options are 360KB 5-1/4", 1.2MB 5-14", 720 KB 3-1/2", 1.44MB 3-1/2", and Not Installed. Not Installed could be used as an option for diskless workstations.

Primary Display: Options are Monochrome, Color 40x25, VGA/PGA/EGA, Color 80x25, and Not Installed. The Not Installed option could be used for Network file servers.

Keyboard:Options are Installed or Not Installed.

While keep programming the setup,the following screen will be displayed in ADVANCED CMOS SETUP.

```
                BIOS SETUP PROGRAM-ADVANCED CMOS SETUP
        xxxxxxxxxxx xxxxxxxxxxx xxxxxxxxxx xxxxxxxxx xxxxxxxxxxx

Typematic Rate Programming :Enabbled      VIdeo ROM.....COO,32K  :Enabled
Typematic Rate Delay (msec) :500          Adapter ROM.....C800,32K :Disabbled
Typematic Rate (Chars/Sec)  :30           Adapter ROM.....D000,32K :Disabbled
Above 1  MB Memory Test     :Disabled     Adapter ROM.....D800,32K :Disabbled
Memory Test Tick Sound      :Enabled      Adapter ROM.....E000,32K :Disabbled
Memory Test Tick Sound      :Enabled      Adapter ROM.....E800,32K :Disabbled
Hit <DEL> Message Display   :Enabled      Adapter ROM.....F00,64K  :Enabled
Hard Disk Type 47 RAM Area  :0:300        BootSsector Virus Protection :Disabied
Wait For <F1> If Any Error  :Enabled
System Boot UP NUM Lock     :Enabled
Numeric Processor Test      :Enabled
Floppy Drive Seek At Boot   :Enabled
System Boot UP Sequence     :A:, C:
Systen Boot Up Cpu          :High
External Cache Memory       :Enabled
Internal Cache Memory       :Enabled
Fast Gate A20 Option        :Enabled
Turbo Switch Function       :Enabled
Password  Checking  Option:Disabled

        ESC:Exit.....F1:Help F2/F3: Color
        F5:Old Values.....F7:Power-On Defaults
```

Fig. A-4 ADVANCED CMOS SETUP. two large shaded blocks contain configurations of FOREX's registers.

By moving curssor to the desired selection and pressing <F1> key, the all options for the dessired selection will be displayed fffor choice.

Typematic Rate Programming : By enabling this option, the user can adjust the rate at which a keystroke is repeated.

Typemaatic Rate Delay & Typematic Rate: When a key is pressed and held down, the character appears on the screen and after a delay set by the Typematic Rate Delay, it keeps on repeating at a rate set by Typematic Rate value. When two or more keys are pressed and held down simultaneously, only the last key pressed will be repeated at the typematic rate. This stops when the last key pressed is released, even if other keys are depressed.

Above 1 MB Memory Test: This feature, when enabled, will invoke the POST memory routines on the RAM above 1 MB (if present on the system). If disabled, the BIOS will only check the first 1 MB of RAM.

Memory Test Tick Sound: This option will enable(turn on) or disable (turn off) the "ticking" sound during the memory test.

Memory Parity Error Check: If the system board does not have parity RAM, the user may disable the memory parity error checking routines in the BIOS.

Hit <DEL> Message Display: Disabling this option, will prevent the message: "Hit<DEL> if you want to run SETUP" from appearing on the screen When the system boots-up.

Hard Disk Type 47 RAM Area: Normally, the data for these disk types are stored at 0:300 in lower system RAM. If a problem occurs with other software, This data can be located at the upper limit of the DOS shell(640KB). If the option is set to "DOS 1 KB," the DOS shell is shortened to 639 KB, and the top 1 KB is used for the hard disk data storage.

Wait For <F1> If Any Error: Before the system boots-up, the BIOS will execute the POST routines, a series of system diagnostic routines. If any of these tests falls, but a non-ffatal error has occurred and the system can still function, the BIOS will respond with an appropriate error message followed by the following statement:

"Press <F1> to continue."

If this option is disabled, any non-fatal error which occurs will not generate the above statement, but the BIOS will still display the apporopriate message. This will eliminate the need for any user response to a non-fatal error condition message. A list of error messages and their corresponding explanations appears in Appendix D.

System Boot Up Num Lock : The user may turn off the "num lock" option on his enhanced keyboard when the system is powered on. This will allow him to use the arrow keys on the numeric keypad instead of using the other set of arrow keys on the enahnced keyboard. The BIOS will default to turning the "num lock" on.

Floppy Drive Seek At Boot : The default for this option is "Disabled" to allow a fast boot and to decrease the possibility of damage to the heads.

System Boot Up Sequence : Normally, the system will attemp to boot from floppy drive A:(if present), and if unsuccessful, it will attempt to boot from hard disk C:. This sequence can be switched using this option. If the option is set to "C:,A:," the system will attempt to boot from the hard disk C:, and then A:. If the option is set to "A:, c:," the sequence is reversed.

External Cache Memory: This option allows users to turn on/off external cache memory.

Fast Gate A20 Option: This option will optimize OS/2 environment.
Turbo Switch Function: This option alows users to enable or disable turbo switch function.

Password Check Option : Controlled by the system manufacturer's preferences, the password feature can be used to prevent unauthorized system boot-up or unauthorized use of BIOS SETUP. The option in the BIOS SETUP only allows the user o enable the password check option every time the system boots or upon entering SETUP only. A third option is to disable the password option entirely.

The default option is "Disabled". The prompt for the password will not appear when the system is re-booted.

If the "Always" option is chose at Setup, each time the system is turned on, i.e. "booted," the prompt for user password will appear.

If the "Setup" option is chosen at Setup, the password prompt will not appear when the system is turned on, but will appear if the user attempts to enter the Setup program.

The program allows three attempts to key in the correct password. After each incorret attempt, the prompt to enter the current password will appear, followed by an "X" After the third incorrect attempt, the system will lock and it will be necessary to reboot. The screen will not display the characters entered.

NOTE:CHANGE PASSWORD
The password, which will be stored in the CMOS, cannot exceed 6 characters in length. A null default password, to be used if the CMOS is corrupted, is stored in the ROM. The password check option is disabled until the null password has been changed by a user defined one.

To change the user password, selection the Change Password option from the main setup screen. This will be described in the later section.

Video ROM Shadow C000,32K....Adapter ROM Shaddow: Shadddow RAM enabled or disabled at each different segment.

After programming the above setups, now you will configure FOREX's registers':

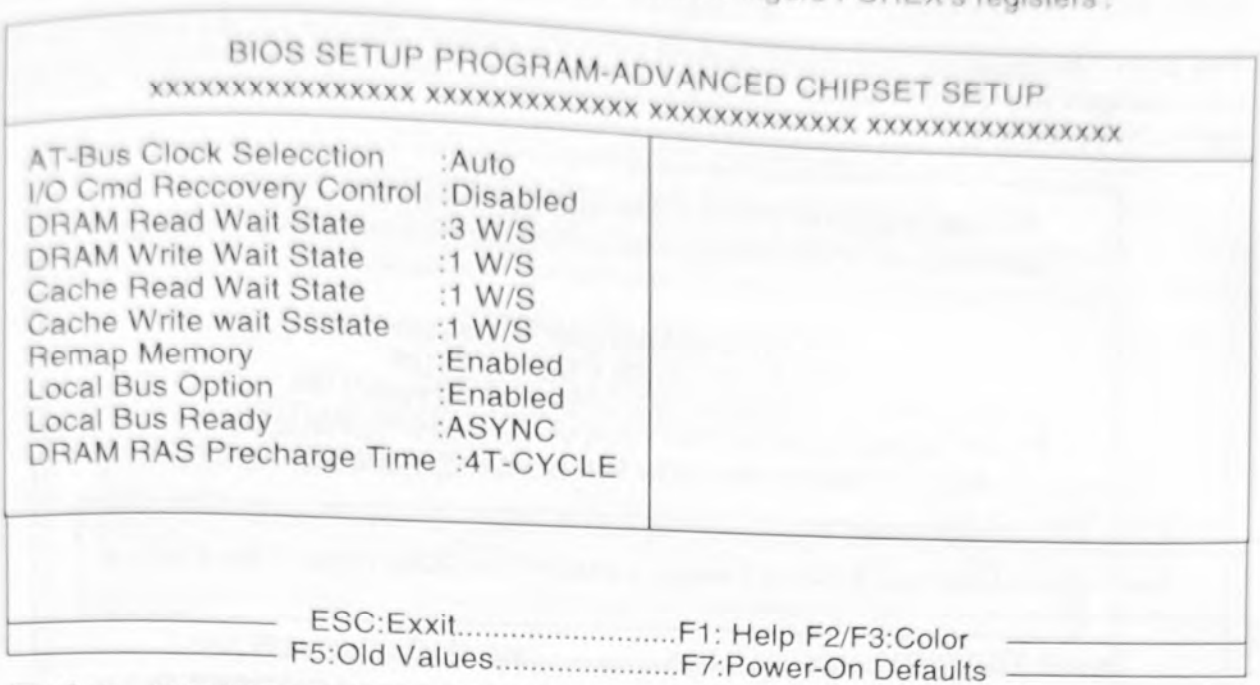

Fig.A-5 ADVANCED CHIPSET SETUP

By moving curssor to the desired selection and pressing <F1> key, the all options for the desired selection will be displayed for choice. User has to use PAGEUP/PAGE-DOWN/CTRL-PAGEUP/CTRL-PAGEDOWN keys to select the desired option.

AUTO CONFIGURATION WITH BIOS DEFAULTS

The Auto Configuration With BIOS feature uses the default system values before the user has changed any CMOS values. If the CMOSS is corrupted, the BIOS deffaaults will automatically be loaded.

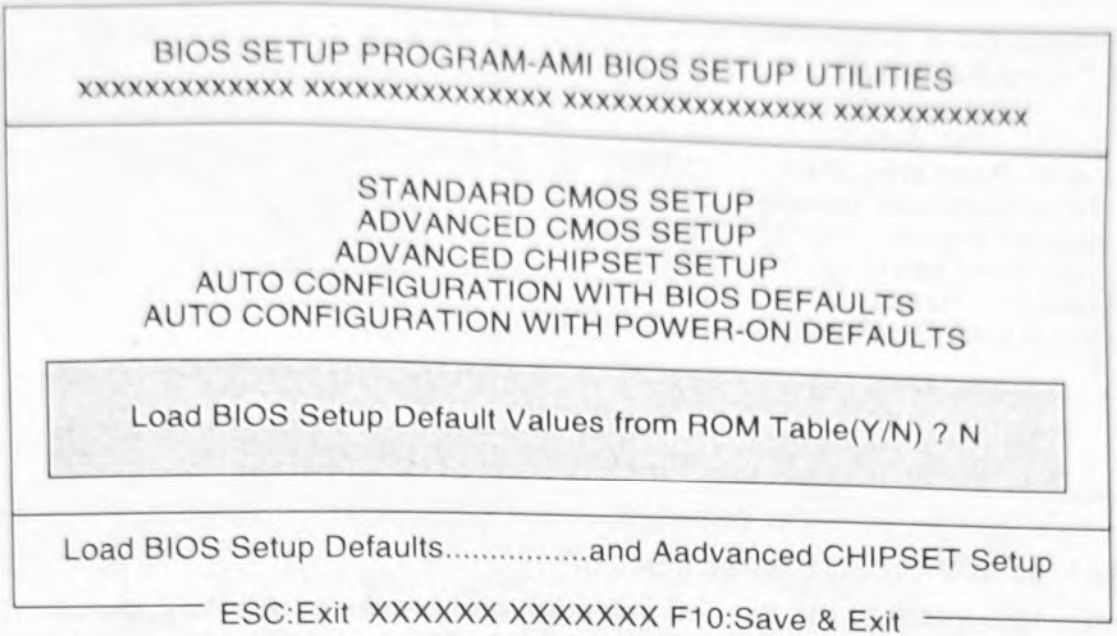

Fig.A-6 BIOS Default Auto Configuration Screen

If you wish to use the BIOS defaults, change the prompt to <Y> and press <ENTER>. The following messaage will appear on the screen:

"Default values loaded.Press any key to contine."

AUTO CONFIGURATION WITH POWER-ON DEFAULTS

This feature uses the default power-on values. You may wish to use this option as a diagnostic aid if your system is behaving erratically.

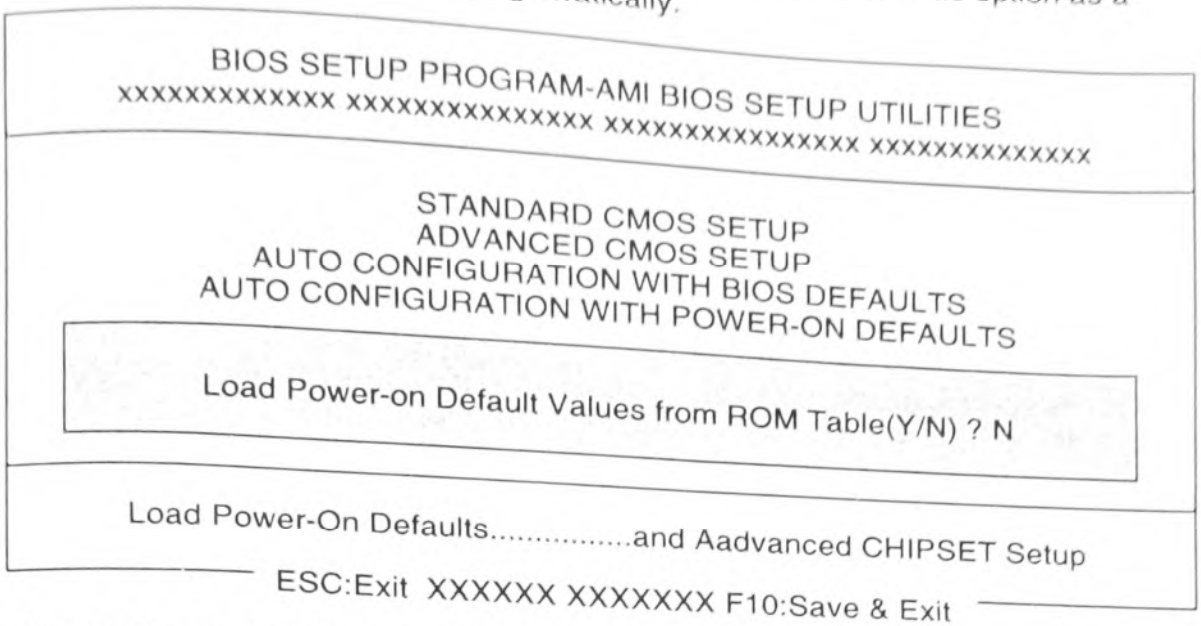

Fig.A-7 Power Default Auto Configuration Screen

If you wish to use the BIOS defaults, change the prompt to <Y> and press <ENTER>. The following messaage will appear on the screen:

"Default values loaded.Press any key to contine."

CHANGE PASSWORD

Depending on the particular hardware manufacturer or system integrator, the system may be configured so that the user is required to enter a password every timee the system boots, or whenever an attempt is made to enter the SETUP programs.

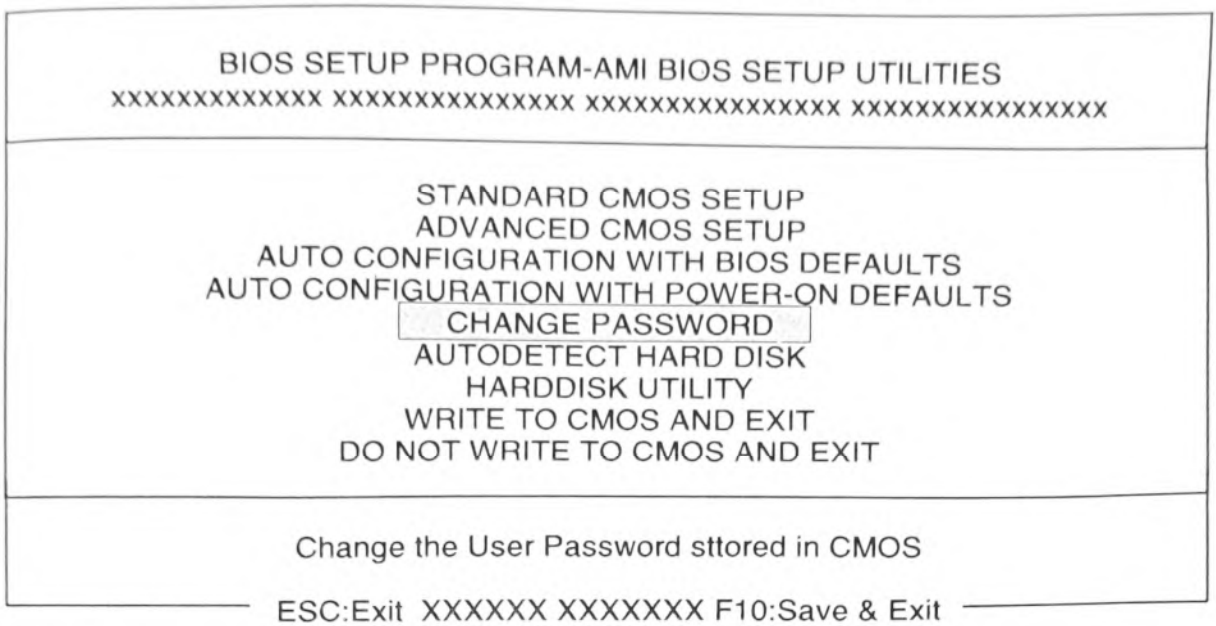

Fig.A-8 Change Password

The password, which will be stored in the CMOS, cannot exceed 6 characters in length. A null default password, to be used if the CMOS is corrupted, is stored in the ROM.

To change the user password, moving the cursor down to this selection, as shown in Fig. A-8 and pressing <ENTER>. The screen in Fig. A-9 will appear.

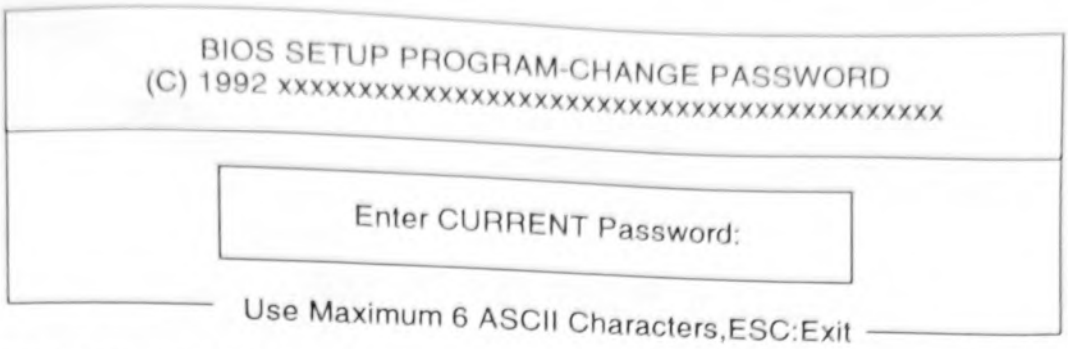

Fig.A-9 Password Opening Screen

The first time you select this option, the above screen will not pop up because no password has been stored.

The screen will not display the characters entered. After the current password has been correctly eentered, the screen in Fig. A-10 will appear, prompting you for the new password.

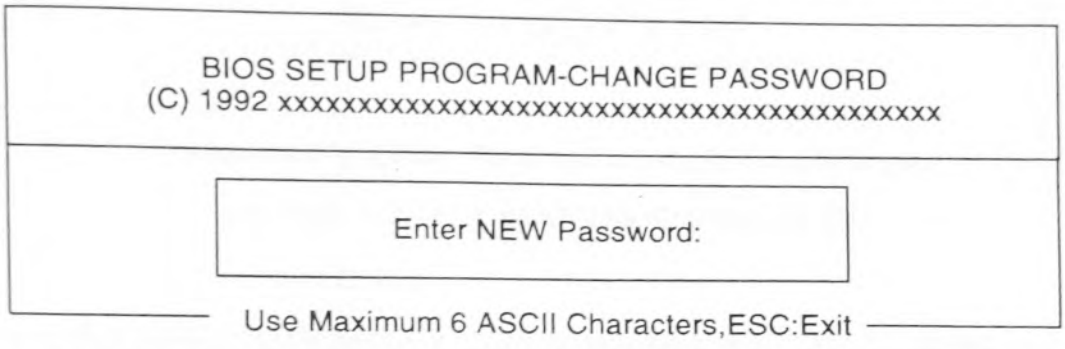

Fig.A-10 New Password Screen

After the new password is eeentered, the prompt in Fig. A-11 will appear. Rekey the new password and press <ENTER>

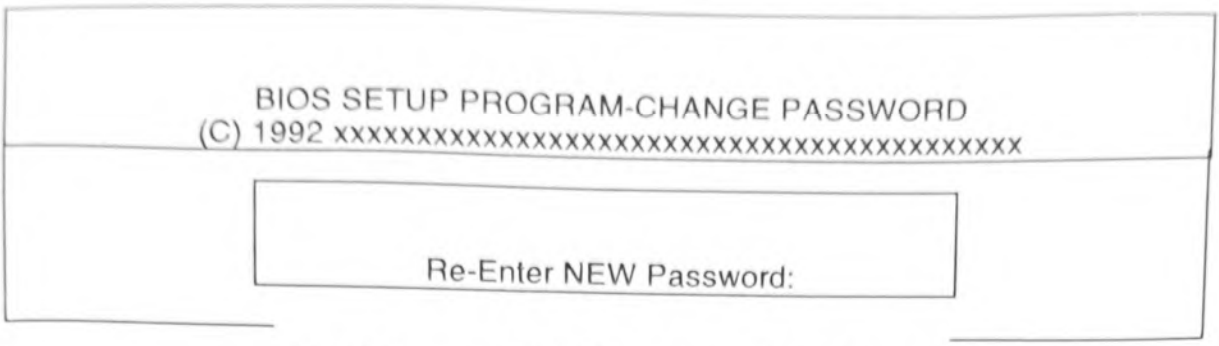

Fig.A-11 Password Configuration Screen

If the password confirmation is miskeyed, the error screen will appear.Otherwise, the "NEW Password Installed" screen will appear to show that the new password is set and the user can press <ESC> to return to the Main Setup menu.

HARD DISK UTILITY

|| WARNING || Performing the Hard Disk Format, Auto Inteleave, and/or Media Analysis will destroy any data on the hard disk being tested. Back up the hard disk(s) before actually performing any of these routines.

Note:These routines are not valid for a SCSI Disk Drive

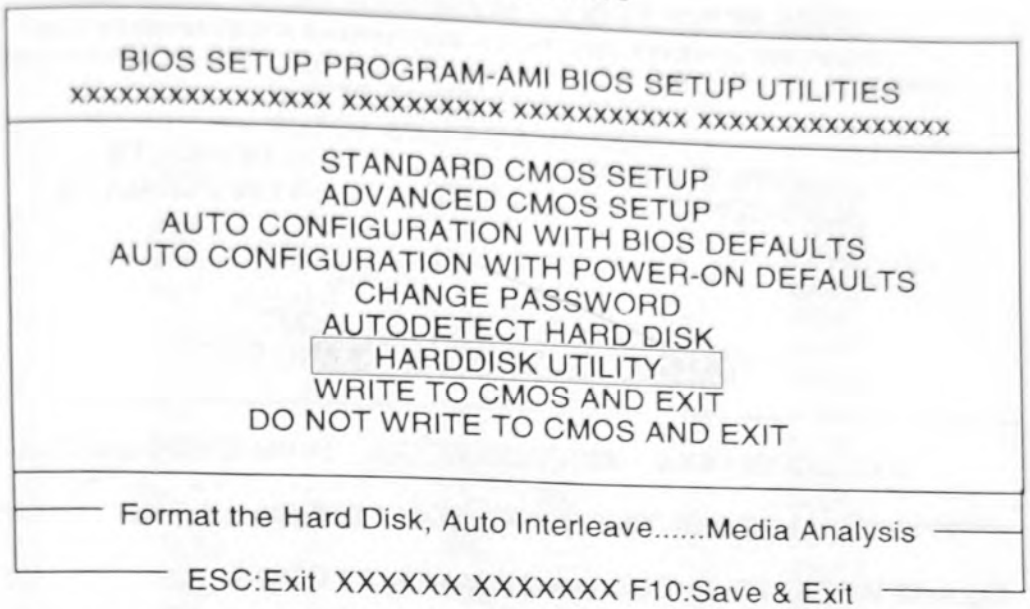

Fig.A-12 Hard Disk Utility

Once the HARDDISK UTILITY option is taken by pressing <ENTER> the screen will appear.

WRITE TO CMOS AND EXIT/DO NOT WRITE TO CMOS AND EXIT

After the completion of all setups, moving cursor down to either "WRITE TO CMOS AND" EXIT" or "DO NOT WRITE TO CMOS AND EXIT" to save the data/values changed or to abandon al the changes and continue with the booting process.

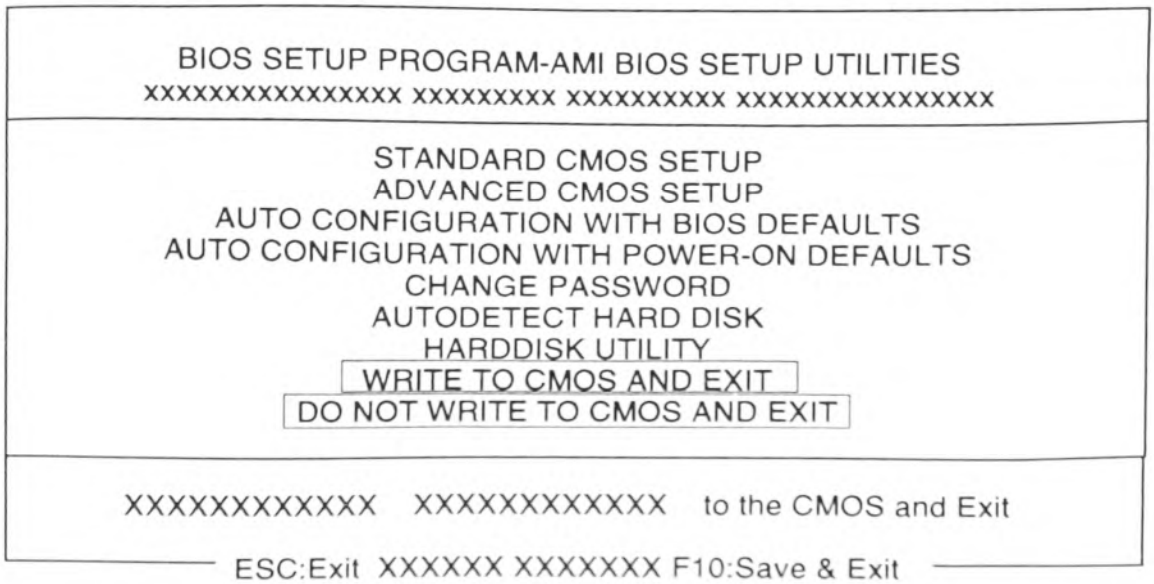

Fig.A-13 WRITE TO CMOS/DO NOT WRITE TO CMOS

APPENDIX B HARD DISK ATTRIBUTES

Type	Cylinders	Heads	WPcom	LZone	Sectors	Size
1	306	4	128	305	17	10MB
2	615	4	300	615	17	20MB
3	615	6	300	615	17	30MB
4	940	8	512	940	17	62MB
5	940	6	512	940	17	47MB
6	615	4	65535	615	17	20MB
7	462	8	256	511	17	31MB
8	733	5	65535	733	17	30MB
9	900	15	65535	981	17	112MB
10	820	3	65535	828	17	20MB
11	855	5	65535	855	17	35MB
12	855	7	65535	855	17	50MB
13	306	8	128	319	17	28MB
14	733	7	65535	733	17	43MB
16	612	4	0	663	17	20MB
17	977	5	300	977	17	41MB
18	977	7	65535	977	17	57MB
19	1024	7	512	1024	17	60MB
20	733	5	300	732	17	30MB
21	733	7	300	732	17	43MB
22	733	5	300	733	17	30MB
23	306	4	0	336	17	10MB
24	925	7	0	925	17	54MB
25	925	9	65535	925	17	69MB
26	754	7	754	754	17	44MB
27	754	11	65535	754	17	69MB
28	699	7	256	699	17	41MB
29	823	10	65535	823	17	68MB
30	918	7	918	918	17	53MB
31	1024	11	65535	1024	17	94MB
32	1024	15	65535	1024	17	128MB
33	1024	5	1024	1024	17	43MB
34	612	2	128	612	17	10MB
35	1024	9	65535	1024	17	77MB
36	1024	8	512	1024	17	68MB
37	615	8	128	615	17	41MB
38	987	3	987	987	17	25MB
39	987	7	987	987	17	57MB
40	820	6	820	820	17	41MB
41	977	5	977	977	17	41MB
42	981	5	981	981	17	41MB
43	830	7	512	830	17	48MB
44	830	10	65535	830	17	69MB
45	917	15	65535	918	17	114MB
46	1224	15	65535	1223	17	152MB

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