4DXL-UC Mother Board

User's Manual

(F4DXL-UC4D)

October, 1994

Version 1.0

NOTE

1. After turning the power on, when you see the error message on the screen, leave the system on for one or two hours to recharge the battery, then you can enter the system configuration.

2. Leave your system on for 10 or 15 hours to completely recharge the battery.

3. If you have turned off the system for more than one month, you should do as item 2 above.

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APPENDIX 2

VESA LOCAL BUS

B	Pin	A
DAT00	-01-	DAT01
DAT02	-02-	DAT03
DAT04	-03-	GROUND
DAT06	-04-	DAT05
DAT08	-05-	DAT07
GROUND	-06-	DAT09
DAT10	-07-	DAT11
DAT12	-08-	DAT13
Vcc	-09-	DAT15
DAT14	-10-	GROUND
DAT16	-11-	DAT17
DAT18	-12-	Vcc
DAT20	-13-	DAT19
GROUND	-14-	DAT21
DAT22	-15-	DAT23
DAT24	-16-	DAT25
DAT26	-17-	GROUND
DAT28	-18-	DAT27
DAT30	-19-	DAT29
Vcc	-20-	DAT31
ADR31	-21-	ADR30
GROUND	-22-	ADR28
ADR29	-23-	ADR26
ADR27	-24-	GROUND
ADR25	-25-	ADR24
ADR23	-26-	ADR22
ADR21	-27-	Vcc
ADR19	-28-	ADR20
GROUND	-29-	ADR18
ADR17	-30-	ADR16
ADR15	-31-	ADR14
Vcc	-32-	ADR12
ADR13	-33-	ADR10
ADR11	-34-	ADR08
ADR09	-35-	GROUND
ADR07	-36-	ADR06
ADR05	-37-	ADR04
GROUND	-38-	WBACK#
ADR03	-39-	BE0#
ADR02	-40-	Vcc
n/c	-41-	BE1#
RESET#	-42-	BE2#
D/C#	-43-	GROUND
M/IO#	-44-	BE3#
W/R#	-45-	ADS#
RDYRTN#	-48-	LDRDY#
GROUND	-49-	LDEV#
IRQ9	-50-	LREC#
BRDY#	-51-	GROUND
BLAST#	-52-	LGNT<X>#
ID0	-53-	Vcc
ID1	-54-	ID2
GROUND	-55-	ID3
LCLK	-56-	ID4
Vcc	-57-	LKEN#
LBS16#	-58-	LEADS#

I INTRODUCTION

This manual is designed to provide the basic information necessary for users to understand and properly use the F4DXL-UC4D VESA Local Bus Mother Board.

The F4DXL-OI mother board is the most uniform and complete solution to the high performance and high integration needs of 486 systems. The board supports the entire range of 486 platforms: Intel P24T, P24C and S SERIES, Cyrix M6 & M7, Ti 386 & 486 CPU, AMD 486 CPU, UMC 486SX 25/33 CPU, 486DX2-66/50, 486DX50/33/25, 486SX25/20/16.

The F4DXL-UC4D mother board consists of UM82C498 and 82C496 chipsets, giving the highest integration implementation of any 486 mother board in the Industry. Consequently, the highest reliability can be found on this mother board. In addition to that, three VESA Local Bus slots provide 32 bits I/O operation, which enhances the performance of the system.

This mother board is ideal for high performance and high integrated 486 PC system running DOS, OS/2, XENIX 386, NOVELL 386, UNIX 386 and Windows NT environments, as well as CAD/CAE/CAM application.

APPENDIX 1

62-PIN I/O BUS

		Rearpanel			
Ground	B1	I I	A1	-I/O CH CK
RESET DRV	B2	I I	A2	SD7
+5VDC	B3	I I	A3	SD6
IRQ9	B4	I I	A4	SD5
-5VDC	B5	I I	A5	SD4
DRQ2	B6	I I	A6	SD3
-12VDC	B7	I I	A7	SD2
0WS	B8	I I	A8	SD1
+12VDC	B9	I I	A9	SD0
GROUND	B10	I I	A10	-I/O CH RDY
-SMEMW	B11	I I	A11	AEN
-SMEMR	B12	I I	A12	SA19
-IOW	B13	I I	A13	SA18
-IOR	B14	I I	A14	SA17
-DACK3	B15	I I	A15	SA16
DRQ3	B16	I I	A16	SA15
-DACK1	B17	I I	A17	SA14
DRQ1	B18	I I	A18	SA13
-REFRESH	B19	I I	A19	SA12
CLK	B20	I I	A20	SA11
IRQ7	B21	I I	A21	SA10
IRQ6	B22	I I	A22	SA9
IRQ5	B23	I I	Q23	SA8
IRQ4	B24	I I	A24	SA7
IRQ3	B25	I I	A25	SA6
-DACK2	B26	I I	A26	SA5
T/C	B27	I I	A27	SA4
BALE	B28	I I	A28	SA3
+5VDC	B29	I I	A29	SA2
0SC	B30	I I	A30	SA1
GROUND	B31	I I	A31	SA0

II GENERAL SPECIFICATIONS

- UM82C498 and UM82C496 Chipsets

- Flexible integrated DRAM Controller

- Support Multi-Type DRAM

- Support up to 192MB DRAM, 64 MB on 30 pins SIMM and 128 MB on 72 pins SIMM.

- Bulti-in Cache Controller:
    - Support L1 write back or write through cache
    - 8 KB Internal cache
    - Support up to 256 KB External cache
    - Multi-Type SRAM: 8K8, 32K8, 64K8

- Built-in Keyboard Controller with outside option

- Provide Green PC power management:
    - Programmable CPU Clock down to 0 MHz
    - 4 power management mode: ON, STANDBY, INACTIVE, OFF MODES
    - Programmable CPU clock down to 0 MHz
    - Fully Support Microsoft Auto Power Management

- Seven 16-bit Input/Output (I/O) slots

- Three VESA Local Bus slots

WARNING FOR 3.3 V CPU

1) For using 3.3 V CPU, a 3.3 V Voltage Regulator LT1085 should be used on U24

2) Adjust Jumpers JP14 - JP16, & JP23 as shown in CPU Power Setting of INSTALLATION Section.

Formatting the Hard Disk Drive

You should not enable anti-virus protection when formatting a hard disk drive.

The DOS hard disk Format utility does not use INT 13h function AH = 05h to format the hard disk. It only verifies the hard disk using the INT 13h Verify function (AH = 04h). The virus warning message is not displayed during DOS hard disk drive formatting.

If the anti-virus feature is enabled, a virus warning message will be displayed when you attempt to format the hard disk drive.

If you select Continue, formatting proceeds as normal.

If you do not want to continue formatting, you may have to press N several times (depending on how many retries are performed by the upper-level software). DOS, for example, does at least five retries before the Format utility is actually aborted.

IV   INSTALLATION

BEFORE TURNING ON THE SYSTEM POWER, PLEASE FOLLOW THE FOLLOWING INSTRUCTIONS CAREFULLY OR YOUR SYSTEM MAY NOT OPERATE CORRECTLY. THANK YOU !!

ON BOARD SIMM INSTALLATION

The F4DXL-OI mother board memory can expanded from 1MB to 192 MB. Either 256Kx9, or 1MBx9, 4MBx9, 16MBx9, 4MBx36 and 16MBx36 memory can be used on the mother board. The combination are :

- SIMM MODULE USED : 256K, 1MB, 4MB, 16MB, 64MB

SIMM MODULE MEMORY on the mother board consists of BK 2, BK 1/3 and BK 0/2. When you install the SIMM Module on the motherboard, you can either install on BK 2, or BK 0/2 & BK 1/2 or both of them. For 30 pin SIMM module, put on BK 2. For 72 pin SIMM module, put on BK 1/3 & BK 0/2. You can install up to 64MB on BK 2 and up to 128MB on BK 0/2 & BK 1/3. Up to 192MB can be installed on this board.

SIMM MODULE ON BOARD POSITION

Please refer to the mother board lay-out.

Changing a Password

Select the Password icon from the Security section of the WinBIOS Setup main menu. Enter the password and press <Enter>. The screen does not display the characters entered. After the new password is entered, retype the new password as prompted and press <Enter>.

If the password confirmation is incorrect, an error message appears. If the new password is entered without error, press <Esc> to return to the WinBIOS Setup Main Menu. The password is stored in CMOS RAM after WinBIOS Setup completes. The next time the system boots, you are prompted for the password if the password function is present and is enabled.

Remember the Password

Keep a record of the new password when the password is changed. If you forget the password and your computer has an American Megatrends motherboard, remove the computer cover, set switch 1-2 (the DIAG switch) to ON, power on the computer. WinBIOS erases the password.

CPU (MICROPROCESSOR) INSTALL SELECTION

CPU	JP11	JP12	JP13	JP17	JP18	JP19
486SX	OPEN	2-3	2-3	OPEN	OPEN	OPEN
*486DX	OPEN	2-3	1-2, 3-4	1-2	OPEN	OPEN
486DX-SL	1-2	1-2	1-2, 3-4	1-2	5-6	1-2, 3-4
P24D	1-2, 4-5	1-2, 4-5	1-2, 3-4	1-2	3-4, 5-6	1-2, 3-4
P24T	1-2	1-2	1-2, 3-4	2-3	5-6	1-2, 3-4
M6	1-2, 3-4, 5-6	1-2, 3-4, 5-6	2-3	OPEN	2-3, 4-5	2-3, 4-5
M7	1-2, 3-4, 5-6	1-2, 3-4, 5-6	1-2, 3-4	1-2	2-3, 4-5	2-3
UMC 486	2-3	2-3	2-3	3-4	1-2	OPEN
AMD 486 DXL	2-3	2-3	1-2, 3-4	1-2, 3-4	1-2	OPEN

* Factory default setting.

CPU POWER SETTING

	JP14	JP15	JP16	JP23
3.3 V	1-2	1-2	1-2	CLOSE
3.45 V	1-2	1-2	1-2	OPEN
*5.0 V	2-3	2-3	2-3	OPEN

*Factory default setting.

| **WARNING FOR 3.3 V CPU** |
|---|
| 1) For using 3.3 V CPU, a 3.3 V Voltage Regulator LT1085 should be used on U24

 2) Adjust Jumpers JP14 - JP16, & JP23 as shown in CPU Power Setting of INSTALLATION Section. |

CPU SPEED SELECTION (CLOCK SPEED SELECTION)

CPU CLOCK	JP4	JP5	JP6
25 MHz	OFF	OFF	ON
*33 MHz	ON	ON	ON
40 MHz	OFF	ON	ON
50 MHz	ON	OFF	OFF

*Factory default setting.

6.3 Security

WinBIOS Password Support

WinBIOS Setup has an optional password feature. The system can be configured so that all users must enter a password every time the system boots or when WinBIOS Setup is executed. The following screen appears when you select the password icon.
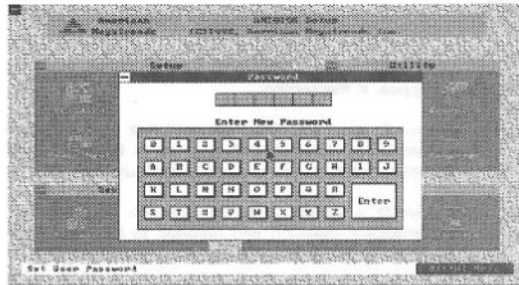
You can enter a password by:

- typing the password on the keyboard,
- selecting each letter via the mouse, or
- selecting each letter via the pen stylus.

Pen access must be customized for each specific hardware platform.

D1/TBLED   TURBO LED CONNECTOR

PIN	ASSIGNMENT
1	LED+ (ANODE)
2	LED- (CATHODE)

JP28/SPEAKERSPEAKER CONNECTOR

PIN	ASSIGNMENT
1	SPEAKER DATA
2	NOT USED
3	GROUND
4	+5V

JP29/KEYLOCK   KEYBOARD LOCK CONNECTOR

PIN	ASSIGNMENT
1	+5V
2	NOT USED
3	GROUND
4	LOCK
5	GROUND

5.3   JUMPER SETTING

LOCAL BUS DEVICE CONTROL JP21, JP22

JP21	CLOSE,	=	*VESA CLOCK > 33MHz
	OPEN	=	VESA CLOCK ≤ 33MHz
JP22	OPEN,	=	*OWS
	CLOSE,	=	1WS

FLASH ROM SELECTION JP2

JP2	2-3	=	FOR 12.0 V FLASH ROM
	1-2	=	*FOR 5.0 V FLASH ROM

* Factory default setting

Power Management Setup, Continued

IDE Standby Power Down Mode
This option specifies the length of time of hard disk drive inactivity that must expire before the IDE hard disk drive is placed in IDE Standby Power Down Mode. The settings are *Enabled* or *Disabled*.

Power Management Mode Select
When this option is set, the system goes to standby mode at the end of the selected timeout period if no external activities (such as keyboard activity) occur.

Standby Timer Value
This function can save system power by cutting down the CPU clock to a pre-defined value if you do not touch the keyboard for a certain period of time, the screen will be blacked out. This value is flexible from 0.5 min up to 512 min.

Inactive Timer Value
This function can further save the system's power after entering the Standby mode for a certain period of time. The CPU clock will be further cut down to 0 MHz.

Monitor LPT Port Activity
When this option is set, the system can detect the status of the parallel port.

Monitor COM Port Activity
When this option is set, the system can detect the status of the serial port.

Monitor ISA Master Activity
When this option is set, the system can detect the ISA Master's status.

Monitor IDE Activity
When this option is set, the system can detect the status of the IDE disk.

Monitor FDC Activity
When this option is set, the system can detect the status of the floppy disk controller

Monitor VGA Activity
When this option is set, the system can detect the status of the display card.

Monitor KBC Activity
When this option is set, the system can detect the status of the Keyboard Controller.

Monitor VESA Slave Activity
When this option is set, the system can detect the status of the Slave VESA.

Suspend/Resume Switch
When this option is set, the system is suspend at the end of the selected timeout period if no external activities occurs. The system can be resumed by hitting any key on the keyboard.

Clock Out on Standby Mode
The system clock can be cut to a selected value when the system goes to the Standby Mode.

VI WINBIOS SYSTEM SETUP

WinBIOS Setup

WinBIOS Setup configures system information that is stored in CMOS RAM. WinBIOS Setup has an easy-to-use graphical user interface that will be immediately recognizable to anyone who has ever used Microsoft Windows. WinBIOS Setup sets a new standard in BIOS user interfaces.

Starting WinBIOS Setup

As POST executes, the following appears:

Hit <DEL> if you want to run SETUP

Press <Del> to run WinBIOS Setup.

WinBIOS Setup Features

Multiple Languages Supported

WinBIOS Setup can use up to four different languages (if at least 96 KB of ROM storage is available). The end user can select a language on the WinBIOS Setup main menu.

Icon-Based User Interface

WinBIOS Setup functions are all available in an easily-accessible graphical user interface.

Chipset Setup, Continued

ISA IRQ 11

At least one IRQ must be free for each PCI Card in the system. If the PCI Card includes a multifunction device, at least two or more IRQs must be free. This option specifies if IRQ 11 is used in ISA. The settings are *Free* or *Used*.

ISA IRQ 15

At least one IRQ must be free for each PCI Card in the system. If the PCI Card includes a multifunction device, at least two or more IRQs must be free. This option specifies if IRQ 15 is used in ISA. The settings are *Free* or *Used*. The Optimal and Fail-Safe defaults are *Free*.

PCI VGA Palette Snooping

This option must be set to *Enabled* if any ISA adapter card installed in the system requires VGA palette snooping. The settings are *Enabled* or *Disabled*. The Optimal and Fail-Safe defaults are *Disabled*.

PCI On Board SCSI Controller

Set this option to *Enabled* If the SCSI controller on the motherboard will be used. The settings are *Enabled* or *Disabled*.

PCI On Board SCSI IRQ

This option specifies the IRQ used for the SCSI controller on the motherboard. The settings are *None, 11,* or *15*.

WinBIOS Setup Features, Continued

Point and Click Interface

WinBIOS Setup uses the familiar point and click navigation technique. The end user can point with the mouse anywhere on the screen, click the left mouse button, and WinBIOS Setup control is transferred to the new location. The previous window is closed. All parameters that have been changed will automatically be saved, pending the selection on the exit screen.

Bus Mouse and Microsoft Mouse Support

The following types of mouse devices are supported:

- PS/2-type mouses,
- bus mouses that use IRQs 3, 4, or 5 (IRQ2 is not supported),
- Microsoft-compatible mouses (the M, V, W Series using the M and M+ protocols), and
- Logitech C-series-compatible mouses using the MM protocol.

Typematic Rate and Delay

AMIBIOS and WinBIOS allow the end user to set the speed that a keystroke is repeated at and the delay before the repeating starts in AMIBIOS or WinBIOS Setup.

Boot Sequence and Speed

AMIBIOS Setup and WinBIOS Setup allow the end user to determine if the system boots from drive C: or A: and the processor boot speed (High or Low).

Memory Test Tick Sound

The 08/08/93 AMIBIOS and later WinBIOS permits the end user to press <Esc> or <Del> during the memory test to disable the ticking sound and bypass the memory test.

6.1.3 Chipset Setup

The WinBIOS Setup options described in this section are selected by choosing the appropriate high-level icon from the WinBIOS Setup main menu. The selection window is shown below. The Chipset Setup options described in this section are samples of the options that may be displayed. WinBIOS Setup can be customized by American Megatrends and by the OEM or system integrator via the American Megatrends AMIBCP utility. See the *American Megatrends AMIBCP User's Guide* for additional information.
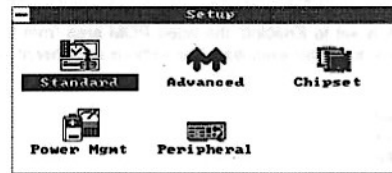
Base Memory Size

This option sets the size of the base system memory. The settings are *512 KB* or *640 KB*.

DRAM Performance Mode

This option sets the DRAM system memory performance mode. The settings are *Standard* or *Enhanced*.

DRAM Performance Mode

This option enables the DRAM performance mode feature. The settings are *Standard* or *Enhanced*.

ISA/DMA Master Performance

This option enables the ISA/DMA master performance mode feature. The settings are *Standard* or *Enhanced*. If *Enhanced* is selected, the PCI posted write buffer is enabled.

WinBIOS Setup Main Menu

The WinBIOS Setup main menu, shown below, is organized into four windows. Each window corresponds to a section in this chapter. Each section contains several icons. Clicking on each icon activates a specific function. The WinBIOS Setup icons and functions are described in this chapter. The sections are:

Setup	described in Section 1 on page 25, this section has five icons that permit you to set system configuration options such as date, time, hard disk type, floppy type, and many others,
Utilities	described in Section 2 beginning on page 49, has four icons that perform system functions,
Security	described in Section 3 beginning on page 51, has two icons that control WinBIOS security features, and
Default	described in Section 4 beginning on page 57, this section has three icons that permit you to select a group of settings for all WinBIOS Setup options.
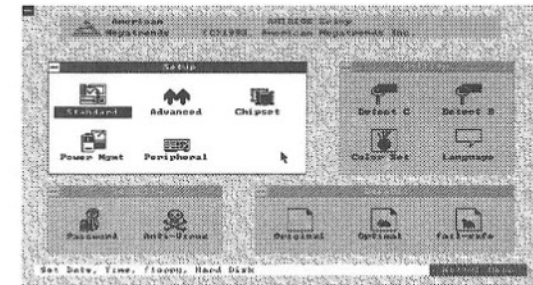
Advanced Setup, Continued

System Boot Up Sequence

This option sets the sequence of boot drives (either floppy drive A: or hard disk drive C:) that WinBIOS attempts to boot from after POST completes. The settings are *C:,A:* or *A:,C:*.

System Boot Up CPU Speed

This option sets the speed of the CPU at system boot time. The settings are *High* or *Low*.

External Cache

This option enables secondary cache memory. If *Both* is selected, internal cache and external cache memory is enabled. If *Internal* is chosen, only the internal cache memory in the Pentium CPU is enabled. If *Disabled* is chosen, all cache memory is disabled. The settings are *Internal, Disabled,* or *Both*.

External Cache Mode

This option selects the type of caching algorithm used by WinBIOS and the computer for L2 (external) secondary cache memory. The settings are *Wr-Thru* or *Wr-Back*.
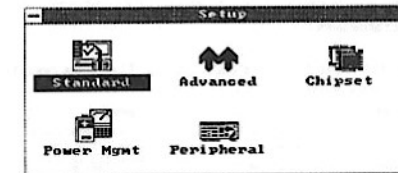
Turbo Switch Function

When this option is set to *Enabled,* the externally-mounted turbo switch is enabled. The settings are *Enabled* or *Disabled*.

6.1 Setup

6.1.1 Standard Setup

The WinBIOS Setup options described in this section are selected by choosing the appropriate high-level icon from the WinBIOS Setup main menu selection screen. The selection window follows.

The Standard Setup screen follows.Date, Day and Time Configuration Select the Standard option.Select the Date and Time icon. The current values for each category are displayed. Enter new values through the keyboard.
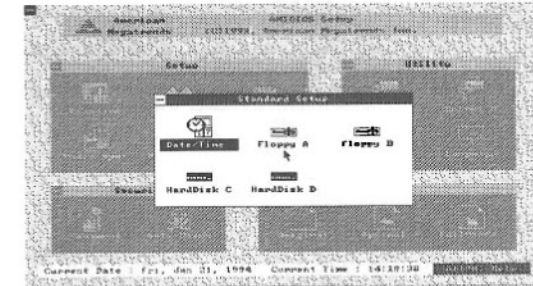
Advanced Setup, Continued

System Keyboard

This option does not specify if a keyboard is attached to the computer. Rather, it specifies if error messages are displayed if a keyboard is not attached. This option permits you to configure workstations with no keyboards. The settings are *Absent* or *Present*.

Primary Display

Select this icon to configure the type of monitor attached to the computer. The settings are *Monochrome, Color 40x25, Color 80x25, VGA/PGA/EGA,* or *Not Installed.*

Mouse Support

When this option is enabled, WinBIOS supports a PS/2-type mouse. The settings are *Enabled* or *Disabled.*

Above 1 MB Memory Test

When this option is enabled, the WinBIOS memory test is performed on all system memory. When this option is disabled, the memory test is done only on the first 1 MB of system memory. The settings are *Enabled* or *Disabled.*

Memory Test Tick Sound

This option enables (turns on) or disables (turns off) the ticking sound during the memory test. The settings are Enabled or Disabled.

Memory Parity Error Checking

This option enables or disables parity error checking for system RAM. The settings are *Enabled* (all system RAM parity is checked) or *Disabled* (parity is checked only on the first 1 MB of system RAM).

Standard Setup, Continued

Hard Disk Drive Types

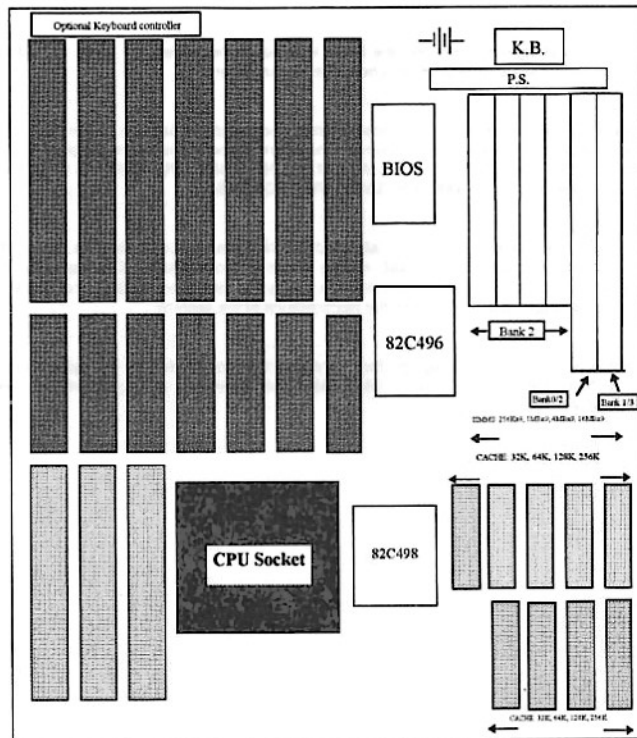| Type	Cylinders	Heads	Write Precompensation	Landing Zone	Sectors	Capacity
1	306	4	128	305	17	10 MB
2	615	4	300	615	17	20 MB
3	615	6	300	615	17	31 MB
4	940	8	512	840	17	62 MB
5	940	6	512	940	17	47 MB
6	615	4	65535	615	17	20 MB
7	462	8	256	511	17	31 MB
8	733	5	65535	733	17	30 MB
9	900	15	65535	901	17	112 MB
10	820	3	65535	820	17	20 MB
11	855	5	65535	855	17	35 MB
12	855	7	65535	855	17	50 MB
13	306	8	128	319	17	20 MB
14	733	7	65535	733	17	43 MB
16	612	4	0	663	17	20 MB
17	977	5	300	977	17	41 MB
18	977	7	65535	977	17	57 MB
19	1024	7	512	1023	17	60 MB
20	733	5	300	732	17	30 MB
21	733	7	300	732	17	43 MB
22	733	5	300	733	17	30 MB
23	306	4	0	336	17	10 MB
24	925	7	0	925	17	54 MB
25	925	9	65535	925	17	69 MB
26	754	7	754	754	17	44 MB
27	754	11	65535	754	17	69 MB
28	699	7	256	699	17	41 MB
29	823	10	65535	823	17	68 MB
30	918	7	918	918	17	53 MB
31	1024	11	65535	1024	17	94 MB
32	1024	15	65535	1024	17	128 MB
33	1024	5	1024	1024	17	43 MB
34	612	2	128	612	17	10 MB
35	1024	9	65535	1024	17	77 MB
36	1024	8	512	1024	17	68 MB
37	615	8	128	615	17	41 MB
38	987	3	987	987	17	25 MB
39	987	7	987	987	17	57 MB
40	820	6	820	820	17	41 MB
41	977	5	977	977	17	41 MB
42	981	5	981	981	17	41 MB
43	830	7	512	830	17	48 MB
44	830	10	65535	830	17	69 MB
45	917	15	65535	918	17	114 MB
46	1224	15	65535	1223	17	152 MB
47	USER-DEFINED HARD DRIVE - Enter user-supplied parameters					

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APPENDIX 3

REAL TIME CLOCK AND NON-VOLATILE RAM

The MC146818 compatible real time clock and its RAM information are backed up by a 3.6V rechargeable DC battery. The internal clock circuitry uses 14 bytes while the rest is allocated to system configuration.

Address	Description
00	Seconds
01	Second alarm
02	Minutes
03	Minute Alarm
04	Hours
05	Hours Alarm
06	Day of Week
07	Day of Month
08	Month
09	Year
0A	Status Register A
0B	Status Register B
0C	Status Register C
0D	Status Register D
0E	Diagnostic Status Byte
0F	Shutdown
10	Diskette Drive Type
11	Reserved
12	Fixed Disk Type
13	Reserved
14	Equipment Byte
15	Low Base Memory
16	High Base Memory
17	Low Expansion Memory Byte
18	High Expansion Memory Byte
19	Extended Fixed Disk Type C
1A	Extended Fixed Disk Type D
1B-2D	Reserved
2E-2F	2-Byte CMOS Check Sum
30	Low Expansion Check Byte
31	High Expansion Check Byte
32	Data Century Byte
33	Information Flags (set during power-on)
34	Reserved

F4DXL-UC4D mother board lay-out

36-PIN I/O BUS
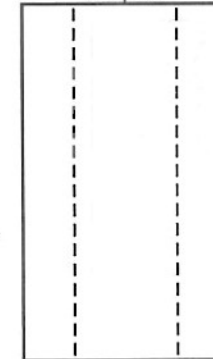
		Rearpanel		
-MEM CS16	D1		C1	SBHE
-I/O CS16	D2		C2	LA23
IRQ10	D3		C3	LA22
IRQ11	D4		C4	LA21
IRQ12	D5		C5	LA20
IRQ15	D6		C6	LA19
IRQ14	D7		C7	LA18
-DACK0	D8		C8	LA17
DRQ0	D9		C9	-MEMR
-DACK5	D10		C10	-MEMW
DRQ5	D11		C11	SD8
-DACK6	D12		C12	SD9
DRQ6	D13		C13	SD10
-DACK7	D14		C14	SD11
DRQ7	D15		C15	SD12
+5VDC	D16		C16	SD13
-MASTER	D17		C17	SD14
GROUND	D18		C18	SD15

III POWER MANAGEMENT

The UM82C498 chipset provide Green PC power management (UPM : UMC Power Management) on this motherboard. There are four power management modes provided on this board: 1) ON (manually switch on the system), 2) Standby mode, 3) Inactive mode and 4) OFF mode (manually switch off the system).

Standby mode can either put CPU in stopgrant state or scaling CPU & system clock. If you did not touch the keyboard for a certain period of time, the CPU clock will cut down to a pre-defined value, this value is software controllable and the screen will be blackout. You can resume the screen by hitting any key on the keyboard. You can control the standby mode entry period on **POWER MANAGEMENT SETUP** from the **BIOS** setup (see section 6.4). The standby timer value is flexible from 0.5 min. up to 512 min.

Inactive mode can stop the CPU clock, that is the CPU clock can cut down to 0 MHz. After entering the Standby mode for a certain period of time, the system will go to Inactive mode to further cut down the CPU clock. You can control the Inactive mode entry period on **POWER MANAGEMENT SETUP** from the **BIOS** setup (see section 6.4). The Inactive timer value is flexible from 2 min up to 512 min.

This motherboard is fully support **Microsoft APM (Auto Power Management)**. UPM can cooperate with **APM** to achieve the best power management performance provided that the **APM** driver is installed.

The **APM (Auto Power Management)** driver is come with your MS-DOS & MS-Windows.

6.4 Default

Default

The icons in this section permit you to select a group of settings for all WinBIOS Setup options. Not only can you use these icons to quickly set system configuration parameters, you can choose a group of settings that have a better chance of working when the system is having configuration-related problems.

Original

Choose the Original icon to return to the system configuration values present in WinBIOS Setup when you first began this WinBIOS Setup session.

Optimal

You can load the optimal default settings for the WinBIOS Setup options by selecting the Optimal icon. The Optimal default settings are best-case values that should optimize system performance. If CMOS RAM is corrupted, the Optimal settings are loaded automatically.

Fail-Safe

You can load the Fail-Safe WinBIOS Setup option settings by selecting the Fail-Safe icon from the Default section of the WinBIOS Setup main menu.
The Fail-Safe settings provide far from optimal system performance, but are the most stable settings. Use this option as a diagnostic aid if the system is behaving erratically.

VESA CARD INSTALL OPERATION

The mother board consists of Three (3) VESA Local Bus slots, each of them can be served as Master/Slave. The following jumper selection is needed for installing the VESA Local Bus Add-On cards.

VL BUS OPTION

	CLOSE	OPEN
JP21	*For VESA clock > 33 MHz	*For VESA clock <= 33 MHz
JP22	For VESA 1 WS	*For VESA 0 WS

* Factory Default Setting

CACHE SRAM INSTALL SELECTION

CACHE SIZE	JP7	JP8	JP9	JP10
64KB	OFF	OFF	OPEN	2-3
128KB	OFF	ON	1-2	1-2
*256KB:				
One Bank (Bank 0) 64KB x 4	ON	ON	1-2, 3-4	1-2
Two Bank (Bank 0 & 1) 32KB x 8	ON	ON	2-3	2-3

* maximum cache size for the mother board.

Anti-Virus

When this icon is selected from the Security section of the WinBIOS Setup main menu, WinBIOS issues a warning when any program (or virus) issues a Disk Format command or attempts to write to the boot sector of the hard disk drive. The following screen appears when you select the Anti-Virus icon:
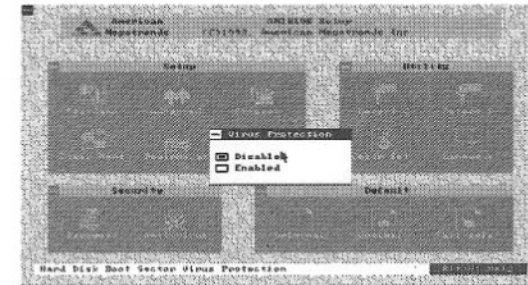
The settings are *Enabled* or *Disabled*. If enabled, the following appears when a write is attempted to boot sector. You may have to type *N* several times to prevent the boot sector write.

Boot Sector Write!!!
Possible VIRUS: Continue (Y/N)? _

The following is displayed after any attempt to format any cylinder, head, or sector of any hard disk drive via the BIOS INT 13 Hard Disk Drive Service:

Format!!!
Possible VIRUS: Continue (Y/N)? _

V   JUMPER/CONNECTOR SELECTION

Please kindly take note about this session for we will discuss all the jumpers/connectors which are on the F4DXL-UC4D mother board.

5.1   CONNECTOR SUMMARY

CONNECTOR	FUNCTION
KB1	KEYBOARD CONNECTOR
JP1	CONNECTOR FOR EXTERNAL BATTERY
JP26/RESET	HARDWARE RESET SWITCH CONNECTOR
JP27/TBSW	TURBO SWITCH CONNECTOR
D1/TBLED	TURBO LED CONNECTOR
JP28/SPEAKER	SPEAKER CONNECTOR
JP29/KEYLOCK	KEYBOARD LOCK CONNECTOR

5.2   CONNECTOR DEFINITION

JP1   CONNECTOR FOR EXTERNAL BATTERY

PIN	ASSIGNMENT
*ON BOARD BATTERY : 2-3	NORMAL
ON BOARD BATTERY : 3-4	RESET CMOS
EXTEND BATTERY : 1	POSITIVE TERMINAL
EXTEND BATTERY : 4	NEGATIVE TERMINAL

JP26/RESET   HARDWARE RESET SWITCH CONNECTOR

PIN	ASSIGNMENT
CLOSE	RESET
OPEN	NORMAL

JP27/TBSW   TURBO SWITCH CONNECTOR

PIN	ASSIGNMENT
OFF (OPEN)	NON-TURBO MODE
ON (CLOSE)	TURBO MODE

Setting a Password

The password check option is enabled in Advanced Setup (see page 39) by choosing either *Always* (the password prompt appears every time the system is powered on) or *Setup* (the password prompt appears only when WinBIOS Setup is run). The password is stored in CMOS RAM. The system asks for a password.

Enter a 1 – 6 character password. The password does not appear on the screen when typed. WinBIOS will ask you to retype the password. Make sure you write it down. If you forget it, you must drain CMOS RAM and reconfigure the system. WinBIOS will then display the following:
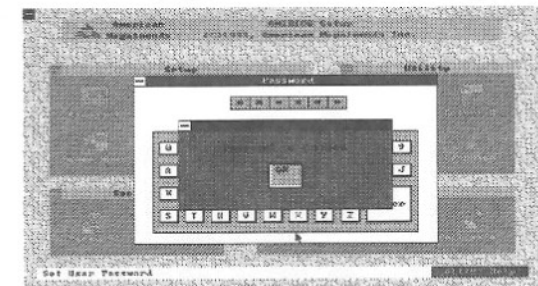
KEYBOARD CONTROLLER SELECTION JP3

JP3	CLOSE	=	*Internal keyboard controller
	OPEN	=	External keyboard controller

For using Internal keyboard controller: remove R16, R19, R26, R58 and close JP3
For using External keyboard controller remove R15, R20, R25

* Factory default setting

VGA Power Control
The system can detect the VGA power when you choose VGA OFF option, and hence save the system power.

IDE Power Control
When this option is disabled, the system's power can be reduced by cutting down the IDE hard disk power.

6.2 Utility

The following icons appear in this section:

Detect C: if drive C: is an IDE drive, the hard disk drive parameters for drive C: are automatically detected and reported to the Hard Disk Drive C: screen in Standard Setup, so you can easily configure drive C:.

Detect D: if drive D: is an IDE drive, the hard disk drive parameters for drive D: are automatically detected and reported to the Hard Disk Drive D: screen in Standard Setup, so you can easily configure drive D:.

Color Set   sets the WinBIOS Setup screen colors.

Language   permits you to select a foreign language-specific screen character set.

WinBIOS Setup Features, Continued

Automatic Intelligent Option Selection

WinBIOS can be configured to reflect dependencies between WinBIOS features and WinBIOS Setup options. For example, the **External Cache** option in Advanced Setup can be programmed to be displayed if the computer has secondary cache memory but to be absent if there is no secondary cache memory.

Help Screens

WinBIOS Setup provides Help screens for Advanced Setup, Chipset Setup, Power Management Setup, and Peripheral Setup. Help on mouse and keyboard use is also available. Choose Help by pressing <Alt> <H>.

Access WinBIOS Setup via Hot Key

A keystroke combination can be used to run WinBIOS Setup from DOS or Microsoft Windows®.

Automatic WinBIOS Setup Option Selection

If selecting a certain setting for one WinBIOS Setup option determines the settings for one or more other WinBIOS Setup options, WinBIOS automatically assigns the dependent settings and does not permit the end user to modify these settings unless the setting for the parent option is changed.

For example, the Serial Port 1 and 2 options in Peripheral Setup can be set to *2F8h, 3F8h, 2E8h,* or *3E8h.* If *2F8h* is chosen by the end user for Serial Port 1, WinBIOS disables *2F8h* for Serial Port 2. Invalid options are grayed on the WinBIOS Setup screen and cannot be selected.

Num Lock Disable

AMIBIOS Setup and WinBIOS Setup allow the end user to set the Num Lock key on or off at system boot.

6.1.4 Power Management Setup

The WinBIOS Setup options described in this section are selected by choosing the appropriate high-level icon from the WinBIOS Setup main menu. The selection window is shown below.
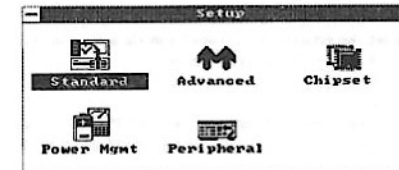
A sample Power Management Setup screen is shown below. The Setup options described in this section are merely examples of options that may occur. WinBIOS Setup can be customized by American Megatrends and by the OEM or system integrator via the American Megatrends AMIBCP utility. See the *American Megatrends AMIBCP User's Guide* for additional information.
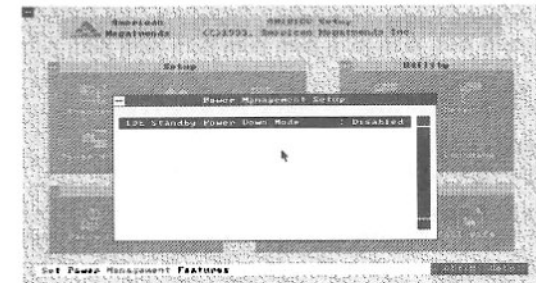
Using a Mouse with WinBIOS Setup

WinBIOS Setup can be accessed via keyboard, mouse, or pen. The mouse click functions are:

- single click to change or select both global and current fields and

- double clock to perform an operation in the selected field.

Using the Keyboard with WinBIOS Setup

WinBIOS Setup has a built-in keyboard driver that uses simple keystroke combinations:

Keystroke	Function
<Tab>	Move to the next window or field.
→, ←, ↑, ↓	Move to the next field to the right, left, above, or below.
<Enter>	Select in the current field.
+	Increments a value.
-	Decrements a value.
<Esc>	Closes the current operation and return to previous level.
<PgUp>	Returns to the previous page.
<PgDn>	Advances to the next page.
<Home>	Returns to the beginning of the text.
<End>	Advances to the end of the text.
<Alt> <H>	Access a help window.
<Alt> <Spacebar >	Exit WinBIOS Setup.
Alphabetic keys	A to Z are used in the Virtual Keyboard, and are not case-sensitive.
Numeric keys	0 to 9 are used in the Virtual Keyboard and Numeric Keypad.

Chipset Setup, Continued

ISA Performance Mode

This option enables the ISA performance mode feature. The settings are *Standard* or *Enhanced*. If *Enhanced* is selected, the PCI posted write buffer is enabled.

ISA Bus Master Installed

Set this option to *Yes* if an ISA bus master device is installed in the computer. The settings are *Yes* or *No*.

ISA VGA Frame Buffer Size

This option must be set to *Enabled* if the VGA card installed in the system requires a frame buffer. This option sets the size of the VGA frame buffer. The settings are *Disabled, 1 MB, 2 MB,* or *4 MB*.

ISA VGA Frame Buf. Base Addr

This option sets the base address (or starting point) of the VGA frame buffer. This option must be set to *Enabled* if the VGA card installed in the system requires a frame buffer. The settings are not established at this time.

ISA IRQ 9

At least one IRQ must be free for each PCI Card in the system. If the PCI Card includes a multifunction device, at least two or more IRQs must be free. This option specifies if IRQ 9 is used. The settings are *Free* or *Used*.

ISA IRQ 10

At least one IRQ must be free for each PCI Card in the system. If the PCI Card includes a multifunction device, at least two or more IRQs must be free. This option specifies if IRQ 10 is used in ISA. The settings are *Free* or *Used*.

Default Settings

Each WinBIOS Setup option has two default settings. These settings can be applied to all WinBIOS Setup options when you select the Default section on the WinBIOS Setup main menu. The types of defaults are:

Optimal   these settings provide the best performance characteristics.

Fail-Safe   these settings are more likely to configure a workable computer when something is wrong. If you cannot boot the computer successfully, select the Fail-Safe WinBIOS Setup options and try to diagnose the problem after the computer boots. These settings do not provide optimal performance.

Advanced Setup, Continued

Password Checking

This option enables the password check option every time the system boots or the end user runs Setup. If *Always* is chosen, a user password prompt appears every time the computer is turned on. If *Setup* is chosen, the password prompt appears if WinBIOS is executed. See page 51 for instructions on changing a password. The Optimal and Fail-Safe default settings are *Setup*.

Video ROM Shadow C000,32K

When this option is set to *Enabled,* the video ROM area from C0000h - C7FFFh is copied (shadowed) to RAM for faster execution. The settings are *Absent, NoShadow,* or *Shadow.*

Shadow C800,16K
Shadow CC00,16K
Shadow D000,16K
Shadow D400,16K
Shadow D800,16K
Shadow DC00,16K

These options enable shadowing of the contents of the ROM area named in the option title. The settings are *Absent, NoShadow,* or *Shadow.* The ROM area that is not used by ISA adapter cards will be allocated to PCI adapter cards.

Auto Key-Lock Timeout

This option sets the timeout value for the WinBIOS AutoKeyLock feature. If Password support is enabled, AutoKeyLock automatically locks the keyboard and mouse if there has been no system activity for the length of time specified in this option. The settings are *Disabled, 1 Min., 2 Min., 3 Min., 4 Min., 5 Min., 6 Min., 7 Min., 8 Min., 9 Min., 10 Min., 11 Min., 12 Min., 13 Min., 14 Min.,* or *15 Min.* The Optimal and Fail-Safe defaults are *Disabled.*

Standard Setup

Hard Disk C: Type
Hard Disk D: Type

Select one of these hard disk drive icons to configure the drive named in the option. A scrollable screen that lists all valid disk drive types is displayed. Select the correct type and press <Enter>. If the hard disk drive is an IDE drive, select Detect C: or Detect D: from the Utility section of the WinBIOS Setup main menu to allow WinBIOS to automatically detect the IDE drive parameters and report them on this screen.

Entering Drive Parameters

You can also enter the hard disk drive parameters. The drive parameters are:

Parameter	Description
Type	The number for a drive with certain identification parameters.
Cylinders	The number of cylinders in the disk drive.
Heads	The number of heads.
Write Precompensation	The size of a sector gets progressively smaller as the track diameter diminishes. Yet each sector must still hold 512 bytes. Write precompensation circuitry on the hard disk compensates for the physical difference in sector size by boosting the write current for sectors on inner tracks. This parameter is the track number where write precompensation begins.
Landing Zone	This number is the cylinder location where the heads will normally park when the system is shut down.
Sectors	The number of sectors per track. MFM drives have 17 sectors per track. RLL drives have 26 sectors per track. ESDI drives have 34 sectors per track. SCSI and IDE drive may have even more sectors per track.
Capacity	The formatted capacity of the drive is (Number of heads) x (Number of cylinders) x (Number of sectors per track) x (512 bytes per sector)

Advanced Setup, Continued

Hit <DEL> Message Display

Disabling this option prevents

Hit <DEL> if you want to run Setup

from appearing when the system boots. The settings are Enabled or Disabled.

Extended BIOS RAM Area

Specify in this option if the top 1 KB of the system programming area beginning at 639K or 0:300 in the system BIOS area in low memory will be used to store hard disk information. The settings are Top 1K or 0:300.

Wait for <F1> If Any Error

WinBIOS POST runs system diagnostic tests that can generate a message followed by:

Press <F1> to continue

If this option is enabled, WinBIOS waits for the end user to press <F1> before continuing. If this option is disabled, WinBIOS continues the boot process without waiting for <F1> to be pressed. The settings are Enabled or Disabled.

System Boot Up Num Lock

When On, this option turns off Num Lock when the system is powered on so the end user can use the arrow keys on both the numeric keypad and the keyboard. The settings are On or Off.

Floppy Drive Seek At Boot

When this option is enabled, WinBIOS performs a Seek command on floppy drive A: before booting the system. The settings are Enabled or Disabled.

Standard Setup, Continued

### Using Auto Detect Hard Disk (Only for IDE Drives)

If you select Detect C: or Detect D: from the Utility section of the WinBIOS Setup main menu, WinBIOS automatically finds all IDE hard disk drive parameters. WinBIOS places the hard disk drive parameters that it finds in the Drive C: Type or Drive D: Type fields in Standard Setup.

Floppy Drive A:
Floppy Drive B:

Move the cursor to these fields via ↑ and ↓ and select the floppy type. The settings are *360 KB 5¼ inch, 1.2 MB 5¼ inch, 720 KB 3½ inch, 1.44 MB 3½ inch, or 2.88 MB 3½ inch.*

6.1.2 Advanced Setup

The WinBIOS Setup options described in this section are selected by choosing the appropriate high-level icon from the WinBIOS Setup main menu. The selection window is shown below.
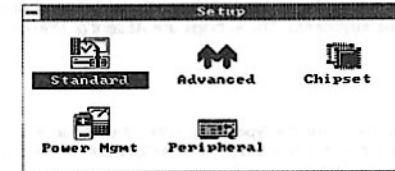
The Advanced Setupoptions described in this section are the standard options as shown on the following screen.
WinBIOS Setup can be customized via the American Megatrends AMIBCP utility. See the *American Megatrends AMIBCP V3.3 User's Guide* for additional information.

Typematic Rate (Chars/Sec)

Typematic Rate sets the rate at which characters on the screen repeat when a key is pressed and held down. The settings are 15, 20, 24, or 30 characters per second.