

486 -VC

Mainboard User's Manual

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INTRODUCTION

SYSTEM GUIDE

The 486-VC Cache System Motherboard

The 486-VC Cache System board is a high performance system board, utilizing the VIA Technology Inc.'s VT82C480 80486 PC/AT chipset, that offers outstanding features and performance for building advanced personal computers or workstations.

High-speed Memory

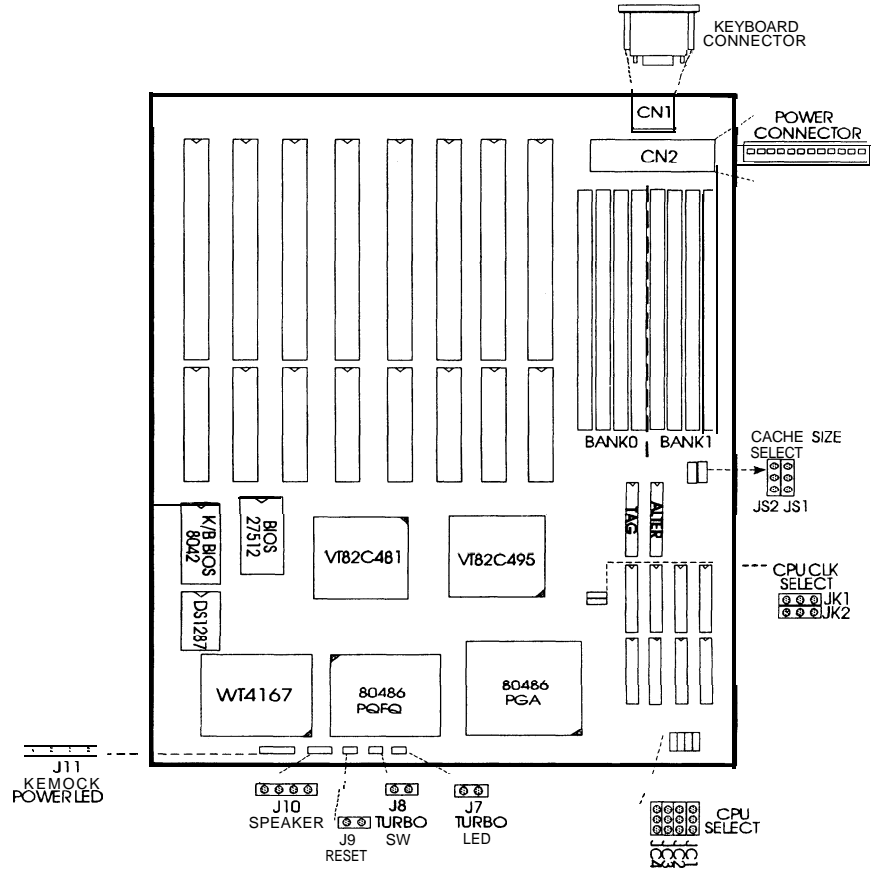
The 486-VC Cache System board is capable of accommodating 1 to 128 megabytes of on board memory, using 256KB, 1MB, 4MB or 16MB SIMMs.

SPECIFICATIONS

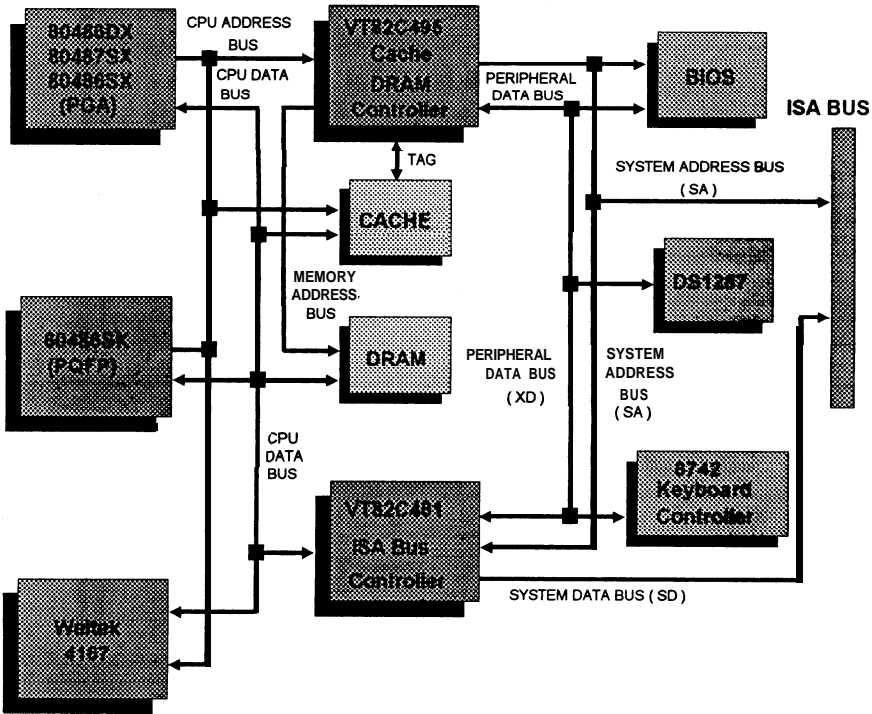
The 486-VC Cache System board comes with the following features:

- Intel 80486DX/80486DX2/80486SX/80487SX microprocessor. Dual CPU of PQFP and PGA packages.
- Weitek 4167 co-processor.
- VIA VT82C480 80486 PC/AT Chipset for high performance.
- Supports 0KB/64KB/128KB/256KB of direct mapped write-back cache memory.
- Supports 1MB up to 128MB of DRAM memory; provides page mode DRAM operation.
- Shadow RAM for fast BIOS access.
- 64KB User-friendly BIOS.
- Eight 16-bit expansion slots.
- Real time clock/calendar.
- Board size 13"x8.58".

MOTHERBOARD LAYOUT



SYSTEM BLOCK DIAGRAM



INSTALLATION

CONNECTOR DESCRIPTION

Jumper	Function	Pin outs	Signal name
J7	Turbo LED	1. 2.	VCC Turbo signal
J9	Hardware reset	1. 2.	Ground Reset signal
J10	Speaker connector	1. 2. 3. 4.	Speaker signal NC Ground + 5V
J11	Key lock & power LED	1. 2. 3. 4. 5.	Power signal Spare Ground Keylock Ground
CN2	Power connector	1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.	Power good + 5V + 12v -12v Ground -5V + 5V
CN1	Keyboard connector	1. 2. 3. 4. 5.	Keyboard clock Keyboard data No connection Ground + 5V

JUMPER DESCRIPTION

Jumper	Function	Open	Close
J2	RTC reset (if using DS1287A)	Normal (default)	Reset
J3	Display type	Mono/EGA/ VGA (default)	Color
J8	CPU speed (Turbo switch)	Turbo	Normal
J9	Hardware reset (Reset)	Normal	Reset

CPU SELECTION

Jumper	486SX	487SX	486DX
JC1	2-3 shorted	1-2 shorted	1-2 shorted
JC2	2-3 shorted	1-2 shorted	1-2 shorted
JC3	2-3 shorted	2-3 shorted	1-2 shorted
JC4	open	2-3 shorted	1-2 shorted

CPU CLOCK SELECTION

Jumper	1x freq.	2x freq.
JK1	2-3 shorted	1-2 shorted
JK2	2-3 shorted	1-2 shorted

AT BUS
select
By 3
for 04250
By 4
0433

MEMORY SYSTEM

MEMORY CONFIGURATION

Memory	Bank 0	Bank 1
1MB	256Kx4	
2MB	256Kx4	256Kx4
5MB	256Kx4	1Mx4
17MB	256Kx4	4Mx4
65MB	256Kx4	16Mx4
4MB	1Mx4	
5MB	1Mx4	256Kx4
8MB	1Mx4	1Mx4
20MB	1Mx4	4Mx4
68MB	1Mx4	16Mx4
16MB	4Mx4	
17MB	4Mx4	256Kx4
20MB	4Mx4	1Mx4
32MB	4Mx4	4Mx4
80MB	4Mx4	16Mx4
64MB	16Mx4	
65MB	16Mx4	256Kx4
68MB	16Mx4	1Mx4
80MB	16Mx4	4Mx4
128MB	16Mx4	16Mx4

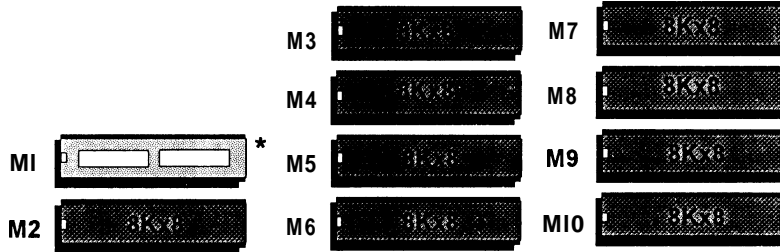
CACHE RAM & CONFIGURING CACHE SIZE

The 486-VC Cache System board uses two jumpers to configure the cache size.

	64K	128K	256K
ALTER RAM	8Kx8	8Kx8	32Kx8
TAG RAM	8Kx8	8Kx8	32Kx8
DATA RAM	8Kx8	32Kx8	32Kx8
JS1	1-2 shorted	1-2 shorted	2-3 shorted
JS2	1-2 shorted	2-3 shorted	2-3 shorted

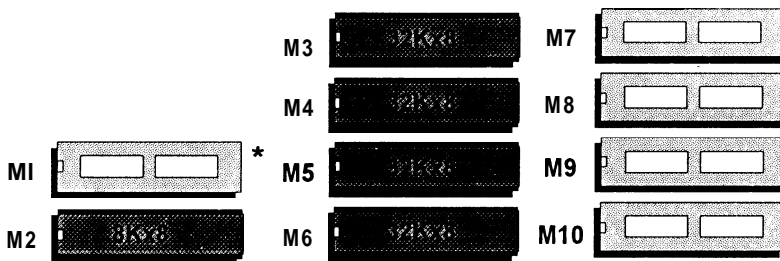
64Kbytes Direct Mapped Cache

The 64Kbytes Direct Mapped Cache option is achieved by installing eight 8Kx8 SRAM (DATA RAM) in M3, M4, M5, M6, M7, M8, M9, and M10. Install one 8Kx8 SRAM (TAG RAM 28 pin) in M2.



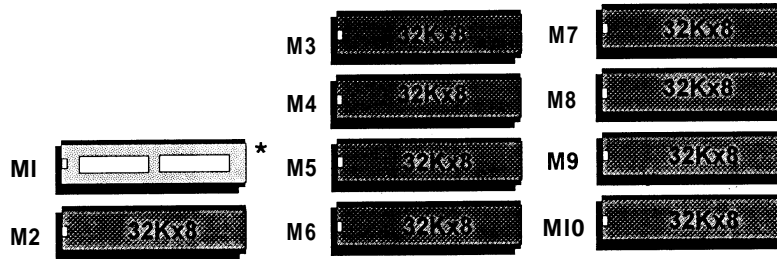
128Kbytes Direct Mapped Cache

The 128Kbytes Direct Mapped Cache option is achieved by installing four 32Kx8 SRAM (DATA RAM) in M3, M4, M5, and M6. Install one 8Kx8 SRAM (TAG RAM 28 pin) in M2.



256Kbytes Direct Mapped Cache

The 256Kbytes Direct Mapped Cache option is achieved by installing eight 32Kx8 SRAM (DATA RAM) in M3, M4, M5, M6, M7, M8, M9, and M10. Install one 32Kx8 SRAM (TAG RAM 28 pin) in M2.



**M1 is AlterRAM, it is optional.*

AWARD BIOS SETUP

SETUP SYSTEM CONFIGURATION

A setup program has been built into the system BIOS so the configurations stored in the CMOS RAM can be changed. This program should be executed only after:

- (1) User has changed system configuration.
- (2) User has changed system backup battery.
- (3) System has detected a configuration error and has asked the user to run the setup program.

After power-on RAM testing, the message: "TO ENTER SETUP BEFORE BOOT PRESS CTRL-ALT-ESC" is displayed on the screen. Press "CTRL+ ALT+ ESC" to run setup or do nothing to bypass. If the "CTRL+ ALT+ ESC" is pressed, the following message will be displayed:

Date : 13 Jan 1992 Time : 10:49:26 Drive A : 1.2M, 5in. Drive B : 1.44M, 3in. Video : EGA/VGA Halt On : All Errors	ROM ISA (486) Award Software, Inc. Base Memory : 64K Extended Memory : 3072K Expanded Memory: OK Other Memory : 384K Total Memory : 4096																					
Cache : External & Internal Shadow : System & Video* Security : Disable	Boot Sequence : A, C Virus Warning : Enable																					
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th></th> <th>CYL</th> <th>Head</th> <th>Sector</th> <th>Precomp</th> <th>Landzone</th> </tr> </thead> <tbody> <tr> <td>Drive C</td> <td>: 9 (112Mb)</td> <td>900</td> <td>15</td> <td>17</td> <td>None</td> <td>901</td> </tr> <tr> <td>Drive D</td> <td>: None (****Mb)</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table>				CYL	Head	Sector	Precomp	Landzone	Drive C	: 9 (112Mb)	900	15	17	None	901	Drive D	: None (****Mb)	0	0	0	0	0
		CYL	Head	Sector	Precomp	Landzone																
Drive C	: 9 (112Mb)	900	15	17	None	901																
Drive D	: None (****Mb)	0	0	0	0	0																
Alt-F1 for Menu Help Page 01 : Status Page PgDn = Options Page		F10 exits F2 change colors																				

* Before disable the system & video shadow, you *have first* to disable the video cacheable and system cacheable function in the options page setup.

STATUS PAGE SETUP

The setup program is completely menu-driven. Use the arrow keys to select an entry; "+" / "-" keys to change an entry; and "F 10" key to **exit**. Help messages are displayed in the window on the screen.

If this option is chosen then the screen above is displayed. System BIOS automatically detects memory size, thus no changes are necessary. After the changes are made, press "F 10" to exit.

OPTIONS PAGE SETUP

The Options Page Setup program functions the same way as the status page Setup, as shown below.

Users are not encouraged to run the status page Setup program, as your system should have been fine tuned before shipping. Improper setup may cause the system to fail, so consult your dealer before making any changes.

Bus Control		
ISA Command Delay	:	Normal
ISA Wait state	:	Normal
I/O Recovery Time	:	Disable
Extended ALE	:	Disable
Decouple Refresh	:	Disable
Cache Control		
256K/384K Relocation	:	Disable
Cache Timing	:	Turbo
Video Cacheable	:	Enable
System Cacheable	:	Enable
Alt-F1 for Menu Help		F10 exits
Page 01 : Status Page	PgDn = Options Page	F2 change colors

SAVE AND EXIT

Once you have completed Setup , then press F 10 to exit. If you did not make any changes, press F 1 to exit; otherwise, press F 5 to save and exit.

HARD DISK SPECIFICATIONS

CONNER

Model	Capacity	Cylinder	Head	Sector
CP-3000	40MB	977	5	17
CP-30064	60MB	762	4	39
CP-3 0064H	60MB	762	4	39
CP-30084	85MB	526	8	39
CP-30084E	85MB	526	8	39
CP-30104	120MB	762	8	39
CP-30104H	120MB	762	8	39
CP-30174	170MB	903	8	46
CP-30174E	170MB	903	8	46
CP-30204	200MB	683	16	38
CP-30204F	200MB	683	16	38

HARD DISK SPECIFICATIONS

MAXTOR

Model	Capacity	Cylinder	Head	Sector
7120AT	120MB	1024	14	17
7213AT	203MB	683	16	38

QUANTUM

Model	Capacity	Cylinder	Head	Sector
PRO52AT	52MB	751	8	17
PRO80AT	80MB	611	16	17
PRO 105AT	105MB	755	16	17
PRO 120AT	120MB	901	5	53
PRO240AT	240MB	723	13	51

SEAGATE

Model	Capacity	Cylinder	Head	Sector
ST35 1A/X	40MB	977	5	17
ST3096A	85MB	1024	10	17
ST3 120A	102MB	1024	12	17
ST3 144A	125MB	1001	15	17
ST3283A	245MB	978	14	35

STANDARD CMOS SETUP

AMBIOS SETUP PROGRAM -STANDARD CMOS SETUP		
(C) 1992 American Megatrends Inc., All Rights Reserved		
Date (mn/date/year)	: Fri, Dec 11 1992	Base memory : 640 KB
Time (hour/min/sec)	: 11 : 32 : 03	Ext. memory : 3072 KB
		Cyl n Head WPcom LZ one Sect Size
Hard disk C: Type	: 17	977 5 300 9n 17 41 MB
Hard disk D: Type	: Not Installed	
Floppy drive A:	: 1.2MB, 5 1/4"	
Floppy drive B:	: Not Installed	
Primary display	: VGA/PGA/EGA	
Keyboard	: Installed	

Sun	Mon	Tue	Wed	Thu	Fri	Sat
29	30	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	31	1	2
3	4	5	6	7	8	9

Esc : Exit ↓ → ↑ Select F2/F3 : Color PU/PD : Modify

ADVANCED CMOS SETUP

AMBIOS SETUP PROGRAM -ADVANCED CMOS SETUP			
(C) 1992 American Megatrends Inc., All Rights Reserved			
Typematic Rate Programming	: Disabled	Adaptor ROM Shadow C800, 32K	: Disabled
Typematic Rate Delay (msec)	: 500	Adaptor ROM Shadow D000, 32K	: Disabled
Typematic Rate (Chars/Sec)	: 15	Adaptor ROM Shadow D800, 32K	: Disabled
Above 1 MB Memory Test	: Disabled	Adaptor ROM Shadow E000, 64K	: Disabled
Memory Test Tick Sound	: Enabled	BootSector Virus Protection	: Enabled
Hit < DEL > Message Display	: Enabled	BIOS Cacheable Option	: Enabled
Hard Disk Type 47 RAM Area	: 0:300	Video Cacheable Option	: Enabled
Wait For < F1 > If Any Error	: Enabled	256K Relecate Option	: Disabled
System Boot Up Num Lock	: On	ISA Bus Command Delay	: Disabled
Numeric Proccorror Teat	: Enabled	ISA Slave Wait States	: 4 W/S
W eitek Processor	: Absent	I/O Recovery Tim e	: Disabled
Floppy Drive Seek At Boot	: Enabled	Extended ALE	: Disabled
System Boot Up Sequence	: A, C	Decouple Refresh	: Disabled
System Boot Up CPU Speed	: High	AUTO Config Option	: Enabled
External Cache Memory	: Enabled	D RAM Speed Select	: 0 W/S
Internal Cache Memory	: Enabled	Bus Clock Rate Select	: CLK2/1.5
Password Checking Option	: Setup	Cache Read Cycle Select	: 0 W/S
Video ROM Shadow C000, 32K	: Enabled	Cache Write Cycle Select	: 0 W/S

ESC: Exit ↓ → ↑ Sel (Ctrl) Pu/Pd:Modify F1: Help F2/F3: Color
F5: Old Values F6: BIOS Setup Defaults F7: Power-on Defaults

"AMI BIOS SETUP PROGRAM"
addendum for VENUS mainboard