

4386 WC-HD

Mainboard User's Manual

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INTRODUCTION

SYSTEM GUIDE

The 4386-VC-HD Cache System Motherboard - support either 486 or 386 system

The 4386-VC-HD 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.

The 4386-VC-HD Cache System board can easily upgrade from 386DX system to 486DX system, and simultaneously use a 386 and 486 CPU.

High-speed Memory

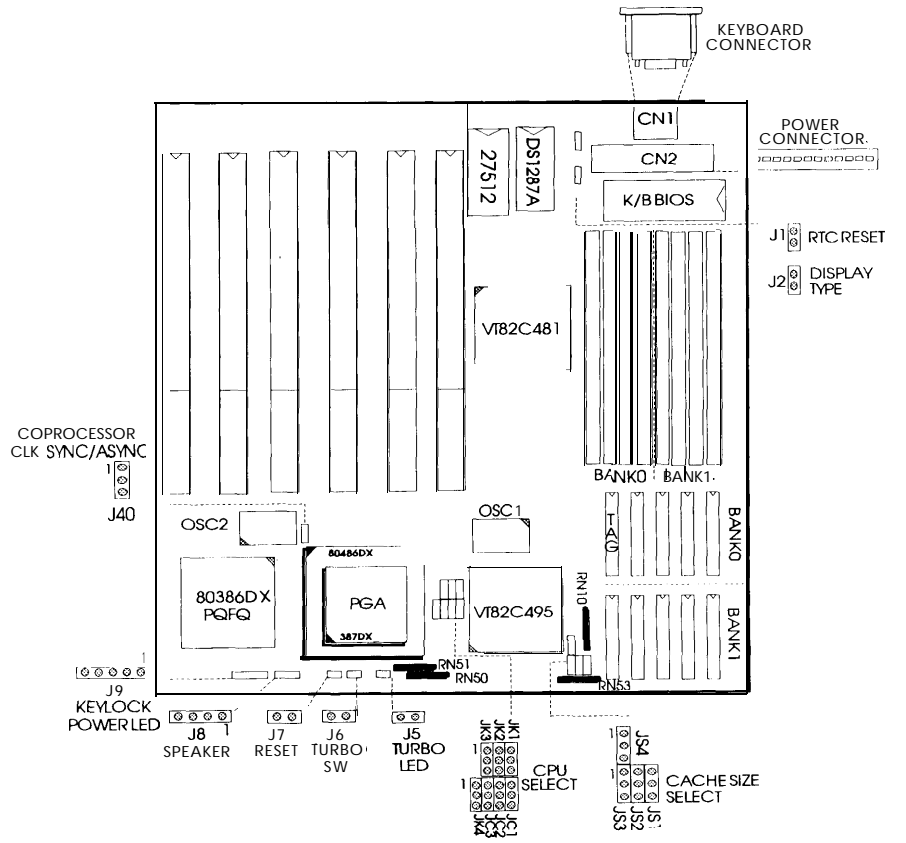
The 4386-VC-HD Cache System board is capable of accommodating 1 to 128 megabytes of on-board memory, using 256KB,1MB, 4MB or 16MB SIMMs.

SPECIFICATIONS

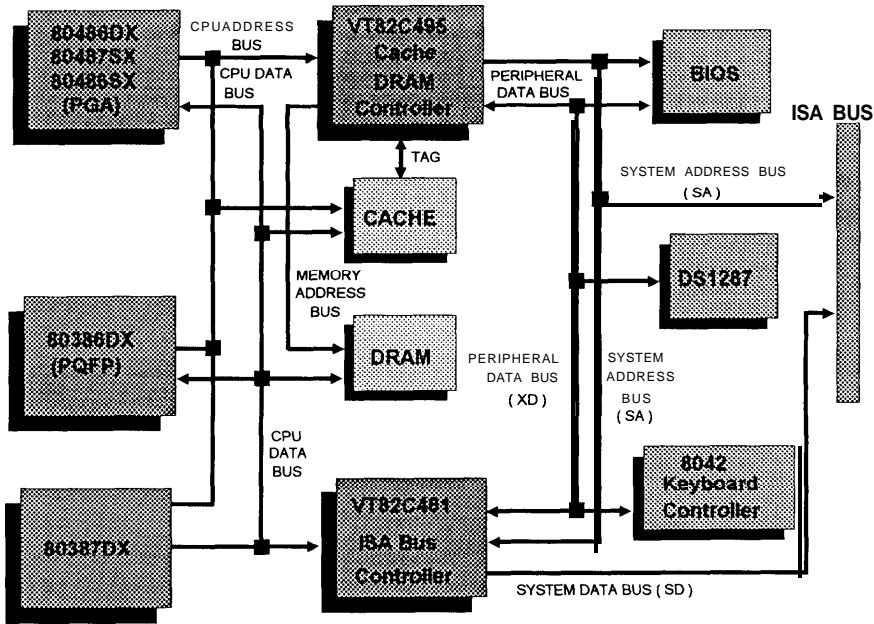
The 4386-VC-HD Cache System board comes with the following features:

- Both **486**-Intel 80486DX/80486DX2/80486SX/80487SX, and **386**-Intel80386DX/AMD80386DX microprocessor. Dual CPU of PQFP and PGA packages.
- 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 for 486 system, 1MB up to 32MB for 386 system; provides page mode DRAM operation.
- Shadow RAM for fast BIOS access.
- 64KB User-friendly BIOS.
- Six 16-bit expansion slots.
- Real time clock/calendar.

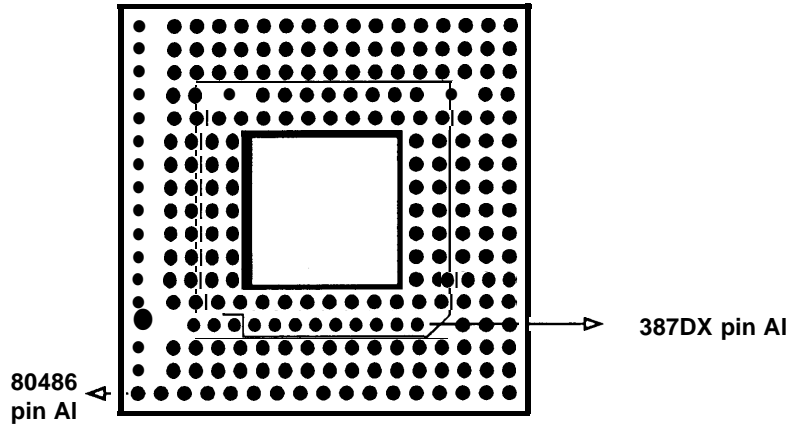
MOTHERBOARD LAYOUT



SYSTEM BLOCK DIAGRAM



COPROCESSOR PGA SOCKET



80486/80387DX PGA socket diagram

INSTALLATION

CONNECTOR & JUMPER PINOUTS

Jumper	Function	Pin outs	Signal name
J5	Turbo LED	1. 2.	VCC Turbo signal
J7	Hardware reset	1. 2.	Ground Reset signal
J8	Speaker connector	1. 2. 3. 4.	Speaker signal NC Ground + 5v
J9	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
J1	RTC reset (if using DS1287A)	Normal (default)	Reset
J2	Display type	Mono/EGA/ VGA (default)	Color
J6	CPU speed (Turbo switch)	Turbo	Normal
J7	Hardware reset (Reset)	Normal	Reset
J40	Coprocessor clock	Sync. mode 1-2 shorted (default)	Async. mode 2-3 shorted

CPU SELECTION

	JK1	JK2	JK3	JK4	JC1	JC2	JC3	OSCI MHz	0 OHM 10P5R	22 OHM 8P4R
486DX-50 *	2-3	2-3	2-3	1-2	1-2	1-2	1-2	50.00	RN51	RN10
486DX-33	2-3	2-3	2-3	1-2	1-2	1-2	1-2	33.33	RN51	RN10
486DX-25	1-2	1-2	2-3	1-2	1-2	1-2	1-2	50.00	RN51	RN10
486DX-20	1-2	1-2	2-3	1-2	1-2	1-2	1-2	40.00	RN51	RN10
486DX2-66	2-3	2-3	2-3	1-2	1-2	1-2	1-2	33.33	RN51	RN10
486DX2-50	1-2	1-2	2-3	1-2	1-2	1-2	1-2	50.00	RN51	RN10
487SX-25	1-2	1-2	2-3	1-2	1-2	1-2	2-3	50.00	RN51	RN10
487SX-20	1-2	1-2	2-3	1-2	1-2	1-2	2-3	40.00	RN51	RN10
486SX-33	2-3	2-3	2-3	1-2	2-3	2-3	off	33.33	RN51	RN10
486SX-25	1-2	1-2	2-3	1-2	2-3	2-3	off	50.00	RN51	RN10
486SX-20	1-2	1-2	2-3	1-2	2-3	2-3	off	40.00	RN51	RN10
386DX-40	1-2	1-2	1-2	2-3	1-2	1-2	1-2	80.00	RN50	RN53
386DX-33	1-2	1-2	1-2	2-3	1-2	1-2	1-2	66.66	RN50	RN53

* Note: the 486DX-50 CPU cannot be used in conjunction with any other processors.

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

* The memory sizes marked with a star are for use in 486 systems only.

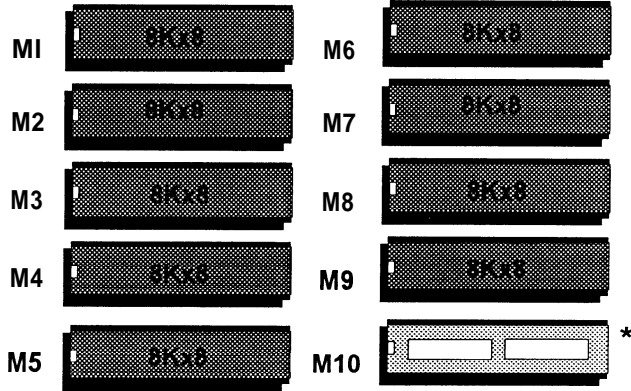
CACHE RAM & CONFIGURING CACHE SIZE

The 4386-VC-HD Cache System board uses four 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
JS3	1-2 shorted	2-3 shorted	1-2 shorted
JS4	1-2 shorted	2-3 shorted	1-2 shorted

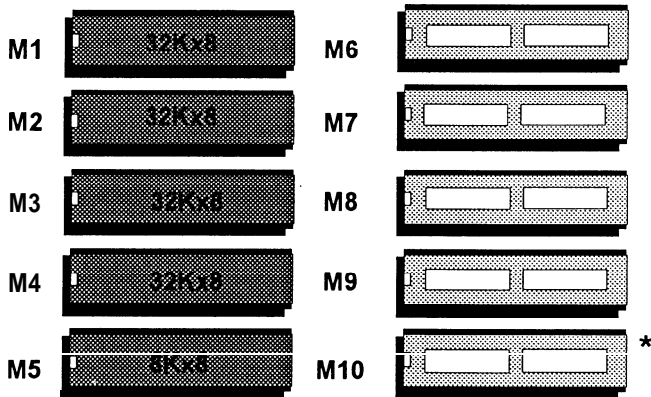
64Kbytes Direct Mapped Cache

The 64Kbytes Direct Mapped Cache option is achieved by installing eight 8Kx8 SRAM (DATA RAM) in M1, M2, M3, M4, M6, M7, M8, M9. Install one 8Kx8 SRAM (TAG RAM 28 pin) in M5.



128Kbytes Direct Mapped Cache

The 128Kbytes Direct Mapped Cache option is achieved by installing four 32Kx8 SRAM (DATA RAM) in M1, M2, M3, M4. Install one 8Kx8 SRAM (TAG RAM 28 pin) in M5.



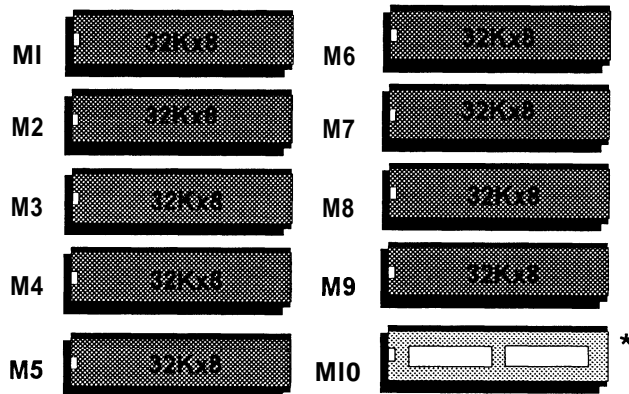
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TAG RAM	8Kx8	8Kx8	32Kx8
DATA RAM	8Kx8	32Kx8	32Kx8
JS1	1-2 shorted	1-2 shorted	2-3 shorted
JS2	1-2 shorted	2-3 shorted	2-3 shorted
JS3	1-2 shorted	2-3 shorted	1-2 shorted
JS4	1-2 shorted	2-3 shorted	1-2 shorted

256Kbytes Direct Mapped Cache

The 256Kbytes Direct Mapped Cache option is achieved by installing eight 32Kx8 SRAM (DATA RAM) in M1, M2, M3, M4, M6, M7, M8, M9. Install one 32Kx8 SRAM (TAG RAM 28 pin) in M5.



**M10 is A lter RAM, 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	ROM ISA (486)	
Time : 10:49:26	Award Software, Inc.	
Drive A : 1.2M, 5in.	Base Memory : 64K	
Drive B : 1.44M, 3in.	Extended Memory : 3072K	
Video : EGA/VGA	Expanded Memory: OK	
Halt On : All Errors	Other Memory : 384K	
	Total Memory : 4096	
Cache : External & Internal	Boot Sequence : A, C	
Shadow : System & Video	Virus Warning : Enable	
Security : Disable		
Drive C : 9 (112Mb)	CYL Head Sector Precomp Landzone	
Drive D : None(****Mb)	900 15 17 None 901	
	0 0 0 0 0 0	
Alt-F1 for Menu Help	F10 exits	
Page 01 : Status Page PgDn = Options Page	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.*

HARD DISK SPECIFICATIONS

CONNER

Model	Capacity	Cylinder	Head	Sector
CP-3000	40MB	977	5	17
CP-30064	60MB	762	4	39
CP-30064H	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