

**CHAPTER 1**  
**INTRODUCTION**

*Overview*

The ALI-1429G is a new single-chip solution that offers the cost-effective system integration for 486 and P24T/D systems. Besides the standard features, the ALI-1429G also supports VESA standards and power management features for most of advanced CPUs on the market. With the use of ALI-1431 TTL ASIC buffer, the TTL components required on the main board are further reduced.

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*System Features*

- Supports INTEL 486SX, DX, DX2, P24T, S-SERIAL.  
AMD DX, DX2, DXL, SMI CPU.  
CYRIX M6, M7.
- Supports H/W GREEN/WAKE UP switch.
- Supports 4 system states for power saving : DOZE / STANDBY / SUSPEND / ON.
- Supports 7 timers from 1 second-320 minutes to individually monitor the system states.
- Supports L1/L2 write back/write through cache feature.
- Supports 2 MASTER / 3 SLAVE 32-bit VESA Bus.
- Supports 32KB/ 64KB/ 128KB/ 256KB/ 512KB cache size.
- Supports 30 pin/ 72pin SIM MODULES.
- Supports SMI/ SMM/ PMU/ APM power controllers.

## ***SPECIFICATION & PERFORMANCE***

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### ***System Specifications***

Processor : INTEL 486DX/SX/DX2/P24T, CYRIX M6/M7, AMD DX/DX2/DXL 486CPU  
CPU Clock : 25/33/40/50 MHz CPU  
Memory : up to 80MB  
Memory Configuration : 1M/2M/4M/5M/8M/16M/20M/32M/64M/68M/80M  
SRAM Configuration : 32K/64K/128K/256K/512K  
BIOS Subsystem : AMI/ AWARD BIOS  
Additional BIOS feature : Set program resides in ROM  
I/O Subsystem NO. slot : Six 16-bit ISA Bus & Three 32-bit Local Bus  
Dimension : 9.9" x 8.8" , 2/3 baby AT size

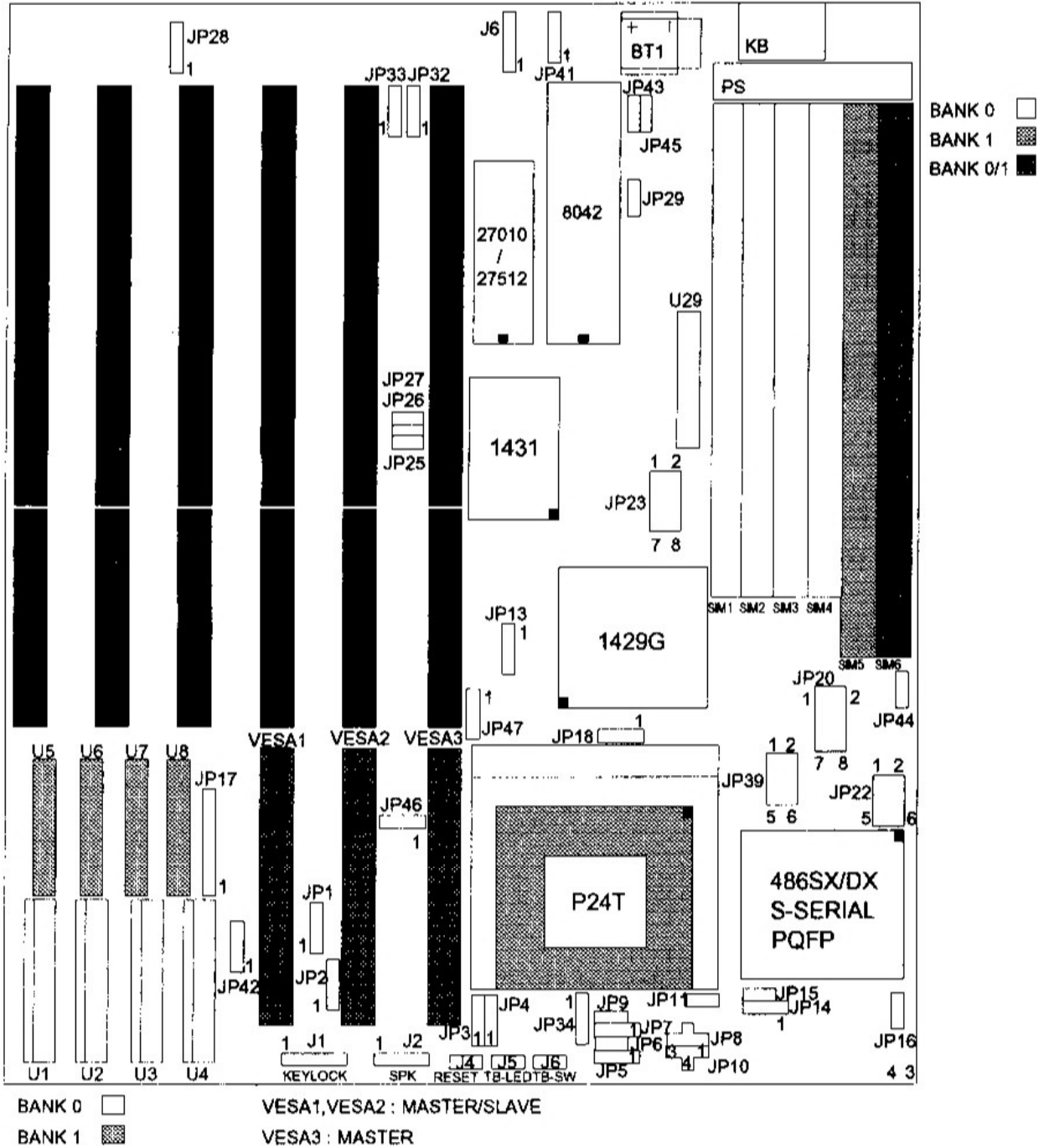
### ***Additional features***

Miscellaneous connectors : Reset Button, Internal Battery, Turbo SW, Flash LED(Turbo LED) for power green  
Board design : 4-layer implementation for low noise operation

### ***System Performance***

<b>SOFTWARE CPU TYPE</b>	<b>LANDMARK SPEED Ver:2.0</b>	<b>POWER METER MIPS Ver:1.7</b>	<b>NORTON CPU SPEED Ver:6.0</b>
Intel 486DX-33MHz	111.36MHz	14.3MIPS	72.0
AMD 486DX-40MHz	133.83MHz	17.4MIPS	84.8
Cyrix M7DX-40MHz	131.97MHz	15.5MIPS	68.0
Intel 486DX2-50MHz	167.63MHz	21.5MIPS	108.3
Cyrix M7DX2-50MHz	165.3MHz	19.8MIPS	85.0
Intel 486DX-50MHz	167.64MHz	21.3MIPS	108.4
Intel 486DX2-66MHz	222.73MHz	28.7MIPS	144.0

ALI-1429G Motherboard Layout



**CHAPTER 2  
INSTALLATION**

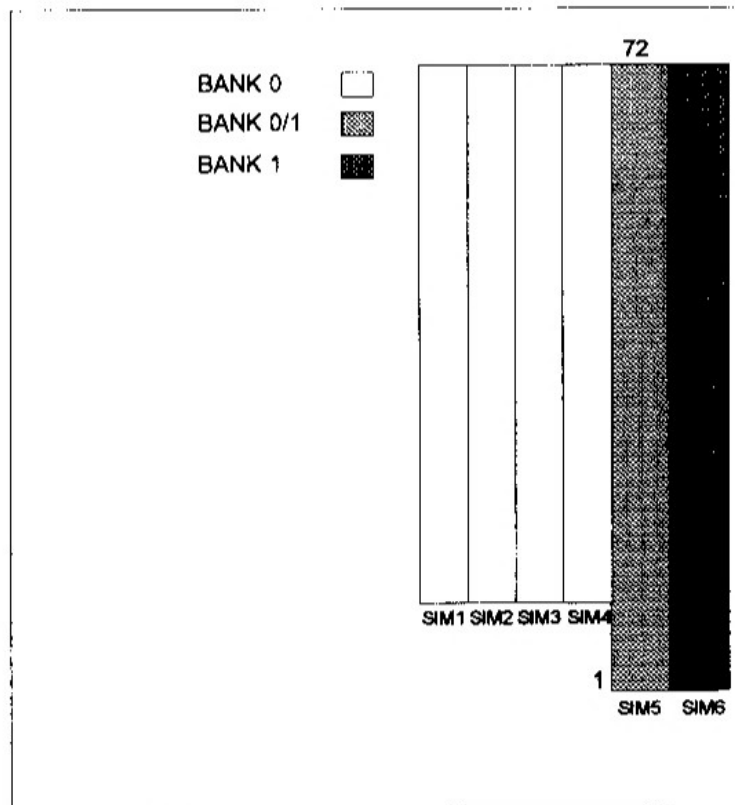
Before the system is ready to operate, the hardware must be set up for various functions of the system. To set up the ALI-1429G main board is a simple task. The user only has to set a few jumpers, connectors and sockets.

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**DRAM INSTALLATION**

The ALI-1429G main board can support expanded memory from 1MB to 80MB. Either 256K, 1MB, 4MB, or 16MB SIMM DRAM can be used on the ALI-1429G motherboard.

■ The board layout below shows the locations of the DRAM memory banks :



☞ The motherboard consists of three memory banks, BANK 0, BANK 0/1, BANK 1 and BANK 0/1 can be used as BANK 0 or BANK 1. For DRAM installation, completely fill up BANK 0 or BANK 0/1 first, then fill up BANK 1.

**DRAM Configuration**

■ Memory can be installed in many ways and the combinations are shown in the following table :

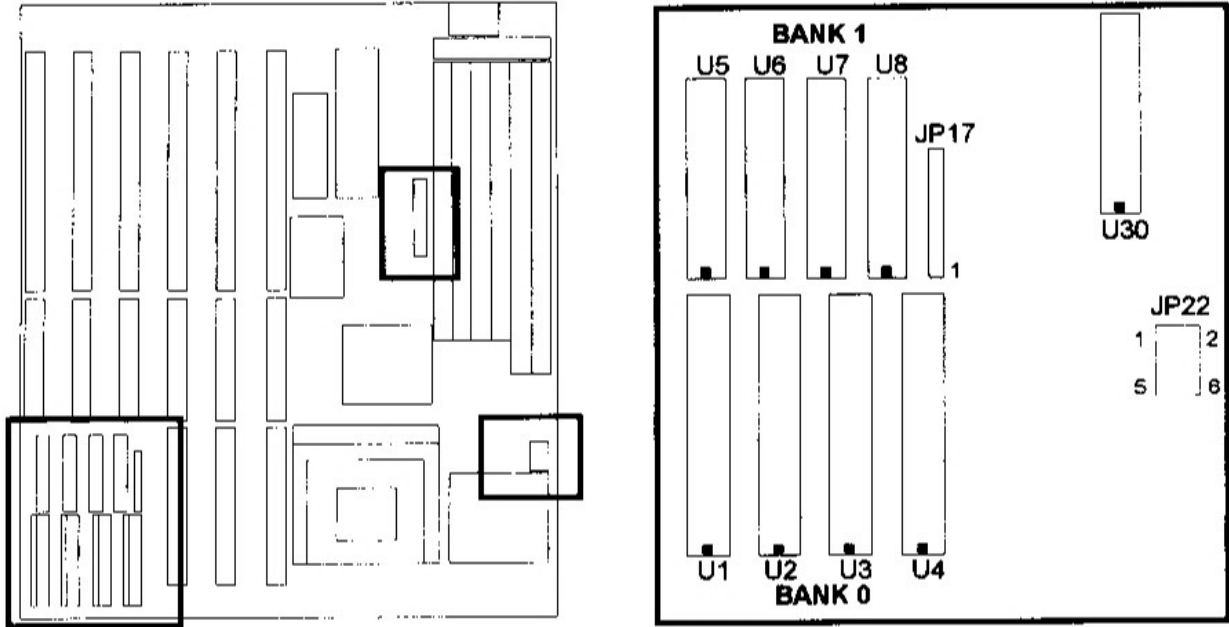
BANK 0 SIM1-SIM4	BANK 0/1 SIM5	BANK 1 SIM6	TOTAL MEMORY
256KB	NONE	NONE	1MB
NONE	1MB	NONE	1MB
256KB	NONE	1MB	2MB
1MB	NONE	NONE	4MB
NONE	4MB	NONE	4MB
256K	NONE	4MB	5MB
1MB	NONE	4MB	8MB
NONE	4MB	4MB	8MB
4MB	NONE	NONE	16MB
NONE	16MB	NONE	16MB
4MB	NONE	4MB	20MB
NONE	16MB	4MB	20MB
NONE	16MB	16MB	32MB
4MB	16MB	NONE	32MB
16MB	NONE	NONE	64MB
16MB	NONE	4MB	68MB
16MB	NONE	16MB	80MB

**SRAM INSTALLATION**

The ALI-1429G main board can support cache memory from 32K to 512K bytes. Either 8K×8, 16K×8, 32K×8, 64K×8, or 128K×8 SRAM can be used on the ALI-1429G motherboard.

# INSTALLING SRAM

## Cache Memory Jumper Locations



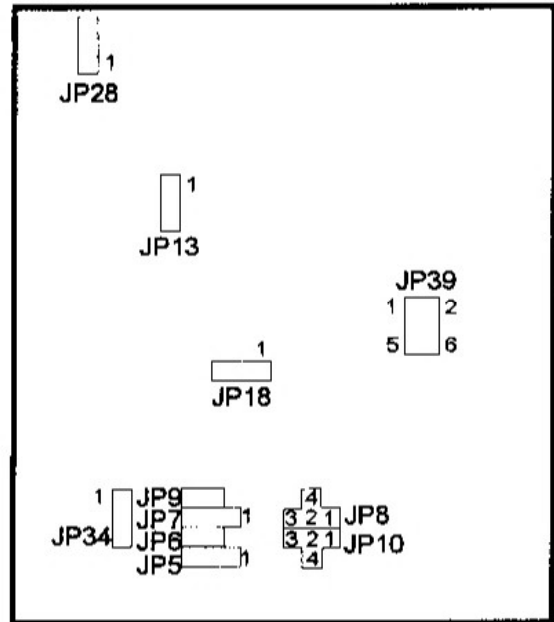
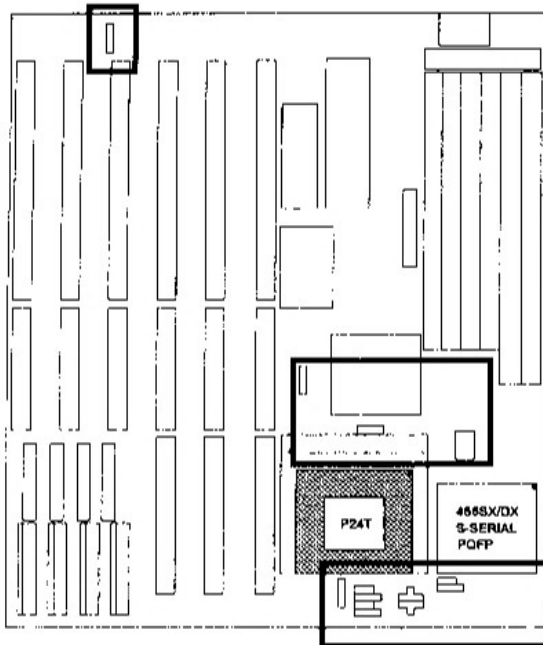
## Cache Configuration Size

32K		64K		64K		128K		256K		256K *		512K	
TAG RAM	DATA RAM	TAG RAM	DATA RAM	TAG RAM	DATA RAM	TAG RAM	DATA RAM	TAG RAM	DATA RAM	TAG RAM	DATA RAM	TAG RAM	DATA RAM
8Kx8 U30	8Kx8 U1-U4	8Kx8 U30	16x8 U1-U4	8Kx8 U30	8Kx8 U1-U8	8Kx8 U30	32Kx8 U1-U4	8Kx8 U30	64Kx8 U1-U4	16Kx8 U30	32Kx8 U1-U8	32Kx8 U30	128Kx8 U1-U4
JP17	JP22	JP17	JP22	JP17	JP22	JP17	JP22	JP17	JP22	JP17	JP22	JP17	JP22

\* Default Setting

## CPU INSTALLATION

### CPU Type & Speed Jumper Locations



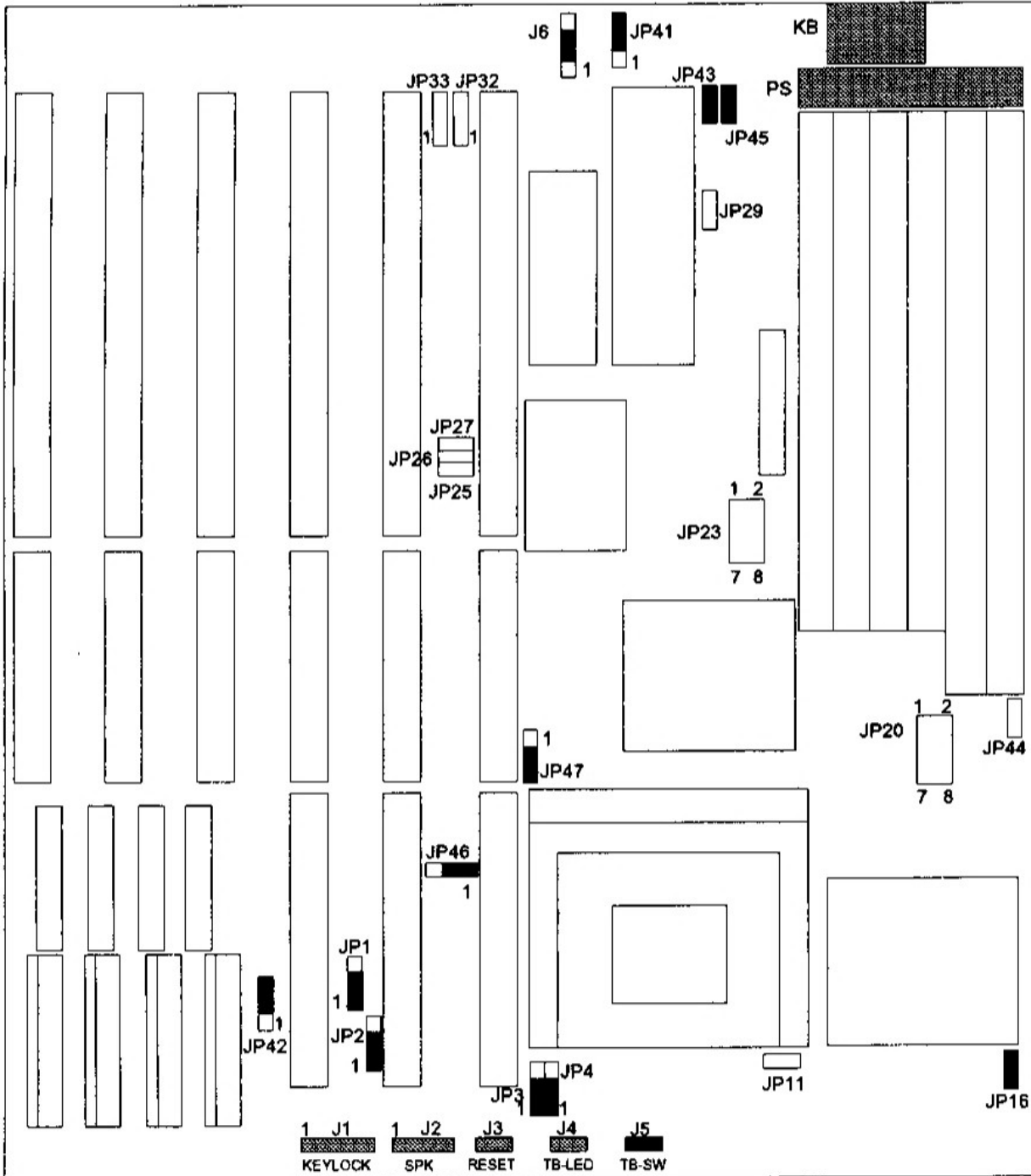
### CPU Type & Speed Selection Table

486SX	487SX	486DX*	M6,M7	P24T	AMD DXL	P23S	P4S,24S
JP18  1 JP15  1 JP14  1 JP8  1 JP10  1 JP9  1 JP7  1 JP6  1 JP5  1 JP34  1	JP18  1 JP15  1 JP14  1 JP8  1 JP10  1 JP9  1 JP7  1 JP6  1 JP5  1 JP34  1	JP18  1 JP15  1 JP14  1 JP8  1 JP10  1 JP9  1 JP7  1 JP6  1 JP5  1 JP34  1	JP18  1 JP8  1 JP10  1 JP9  1 JP7  1 JP6  1 JP34  1 JP5  1 M6 M7  1 JP15  1 JP14  1	JP18  1 JP15  1 JP14  1 JP8  1 JP10  1 JP9  1 JP7  1 JP6  1 JP5  1 JP34  1	JP18  1 JP15  1 JP14  1 JP8  1 JP10  1 JP9  1 JP7  1 JP6  1 JP5  1 JP34  1	JP18  1 JP15  1 JP14  1 JP8  1 JP10  1 JP9  1 JP7  1 JP6  1 JP5  1 JP34  1	JP18  1 JP15  1 JP14  1 JP8  1 JP10  1 JP9  1 JP7  1 JP6  1 JP5  1 JP34  1
20MHz	25MHz	33MHz*	40MHz	50MHz			
JP28  1 JP13  1 JP39  1 2 5 6	JP28  1 JP13  1 JP39  1 2 5 6	JP28  1 JP13  1 JP39  1 2 5 6	JP28  1 JP13  1 JP39  1 2 5 6	JP28  1 JP13  1 JP39  1 2 5 6			

\* Default Setting













# OTHER JUMPER & CONNECTOR INSTALLATION

## Other Jumper Settings













Other Jumper Definitions

JUMPER	PIN DEFINITION																													
J6	 NORMAL *	 CLEAR CMOS SETUP																												
JP1 OPEN *	 0 WAIT FOR VESA ID2	 1 WAIT FOR VESA ID2																												
JP2 OPEN *	 < -33MHz FOR VESA ID3	 > -33MHz FOR VESA ID3																												
JP11	 OTHER CPU *	 INTEL-S CPU																												
JP16	 DISABLE 486 PQFP CPU *	 ENABLE 486 PQFP CPU																												
JP25,JP26,JP27 : H/W CPU TYPE OPEN *	<table border="0" style="width: 100%; text-align: center;"> <thead> <tr> <th></th> <th>JP25</th> <th>JP26</th> <th>JP27</th> </tr> </thead> <tbody> <tr> <td>M6</td> <td></td> <td></td> <td></td> </tr> <tr> <td>486DLC</td> <td></td> <td></td> <td></td> </tr> <tr> <td>M7</td> <td></td> <td></td> <td></td> </tr> <tr> <td>P24T</td> <td></td> <td></td> <td></td> </tr> <tr> <td>486DX</td> <td></td> <td></td> <td></td> </tr> <tr> <td>UP 486</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			JP25	JP26	JP27	M6				486DLC				M7				P24T				486DX				UP 486			
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M6																														
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M7																														
P24T																														
486DX																														
UP 486																														
JP29	 COLOR *	 MONOCHROME																												

\* Default Setting


## OTHER JUMPER

JUMPER	PIN DEFINITION	
JP41	 USE LITHIUM BATTERY *	 USE NI-CD BATTERY
JP42	 VESA BUS CYCLE WITH 1 WAIT STATE *	 VESA BUS CYCLE 0 WAIT STATE
JP46	 NORMAL *	 RESERVED
JP47	 USE 74F244 TTL *	 USE 74F245 TTL

\* Default Setting

## Connector Description

### 1. MAIN CONNECTOR DEFINITION

CONNECTOR	PIN OUT	SIGNAL NAME
J1 : KEY LOCK	1 2 3 4 5	LED POWER NOT USED GROUND KEYBOARD INHIBITOR GROUND
J2 : SPK NOTE : SPEAKER BEEP 1 : DOZE MODE 2 : STANDBY MODE 3 : SUSPEND MODE	1 2 3 4	DATA OUT NOT USED GROUND +5V DC
J3 : RESET	1 2	GROUND RESET IN
J4 : TB-LED NOTE : THE J4 COMPRISES TURBO-LED & POWER GREEN LED  Flicker on/off 0.5S DOZE MODE on/off 1S STANDBY MODE on/off 2S SUSPEND MODE still light ON	1 2	+ ANODE - CATHODE





CONNECTOR	PIN OUT	SIGNAL NAME
<b>J5 : TB-SW</b> NOTE: <input checked="" type="checkbox"/> TURBO MODE * <input type="checkbox"/> NORMAL MODE	1	GROUND
	2	SELECT PIN
<b>KB : KEYBOARD CONNECTOR</b>	1	KEYBOARD CLOCK
	2	KEYBOARD DATA
	3	SPACE
	4	GROUND
	5	+5V
<b>PS : POWER CONNECTOR</b>	1	POWER GOOD
	2	+5V DC
	3	+12V DC
	4	-12V DC
	5,6,7,8	GROUND
	9	-5V DC
	10,11,12	+5V DC

\* Default Setting

2. OTHER CONNECTOR DEFINITION

CONNECTOR	PIN DEFINITION												
<b>JP20 : STANDBY &amp; SUSPEND MODE GREEN CONTROL CONNECTOR</b>	<table border="0"> <tr> <td>1</td> <td>2</td> <td>PIN 1,3 FOR STANDBY MODE USE</td> </tr> <tr> <td>3</td> <td>4</td> <td>EXAMPLE : VGA, HDD.....</td> </tr> <tr> <td>5</td> <td>8</td> <td>PIN 5,7 FOR SUSPEND MODE USE</td> </tr> <tr> <td>7</td> <td>8</td> <td>EXAMPLE : VGA, HDD.....</td> </tr> </table>	1	2	PIN 1,3 FOR STANDBY MODE USE	3	4	EXAMPLE : VGA, HDD.....	5	8	PIN 5,7 FOR SUSPEND MODE USE	7	8	EXAMPLE : VGA, HDD.....
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3	4	EXAMPLE : VGA, HDD.....											
5	8	PIN 5,7 FOR SUSPEND MODE USE											
7	8	EXAMPLE : VGA, HDD.....											
	<p>GREEN POWER SUPPLY</p> <p>JP20</p> <table border="0"> <tr> <td><input checked="" type="checkbox"/></td> <td>2</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>4</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>6</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>8</td> </tr> </table>	<input checked="" type="checkbox"/>	2	<input checked="" type="checkbox"/>	4	<input checked="" type="checkbox"/>	6	<input checked="" type="checkbox"/>	8				
<input checked="" type="checkbox"/>	2												
<input checked="" type="checkbox"/>	4												
<input checked="" type="checkbox"/>	6												
<input checked="" type="checkbox"/>	8												
<b>JP23 : RESERVED FOR GREEN CONTROL CONNECTOR WHEN U21(74F373) IS INSTALLED</b>													

**OTHER JUMPER**

CONNECTOR	PIN DEFINITION
<b>JP32 : MODEM RING CONNECTOR</b> OPEN *	 FOR MODEM USE
<b>JP33 : H/W GREEN WAKE-UP CONNECTOR</b> OPEN *	 FOR H/W GREEN WAKE-UP SWITCH
<b>JP43 : CONTROL GREEN VGA H-SYNC CONNECTOR</b> (OPTION FOR 7407)	 CLOSE * WHEN U31 REMOVED
<b>JP44 : MA3 CONTROL EXT GREEN CONNECTOR</b> OPEN *	
<b>JP45 : CONTROL GREEN VGA V-SYNC CONNECTOR</b> (OPTION FOR 7407)	 CLOSE * WHEN U31 REMOVED

\* Default Setting

# EXP4049

## AWARD BIOS VER:2.2 SETUP

Please enter " STANDARD CMOS SETUP " to enter the next screen.

ROM ISA BIOS (2C4K9D01)  
 CMOS SETUP UTILITY  
 AWARD SOFTWARE,INC.



<b>STANDARD CMOS SETUP</b> BIOS FEATURES SETUP CHIPSET FEATURES SETUP POWER MANAGEMENT SETUP LOAD BIOS DEFAULTS LOAD SETUP DEFAULTS	SUPERVISOR PASSWORD USER PASSWORD IDE HDD AUTO DETECTION SAVE & EXIT SETUP EXIT WITHOUT SAVING
Esc : Quit	↑↓→← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Time, Date, Hard Disk Type...	

ROM ISA BIOS (2C4K9D01)  
 STANDARD CMOS SETUP  
 AWARD SOFTWARE,INC.

Date (mm:dd:yy) : Thu, May 5 1994																																																							
Time (hh:mm:ss) : 14:29:57																																																							
Drive C : User (182Mb) Drive D : None ( 0Mb) Drive A : 1.2M , 5.25 in. Drive B : None Video : EGA/VGA Halt On : ALL Errors	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"></th> <th style="text-align: left;">CYLS.</th> <th style="text-align: left;">HEADS</th> <th style="text-align: left;">PRECOMP</th> <th style="text-align: left;">LANDZONE</th> <th style="text-align: left;">SECTORS</th> </tr> </thead> <tbody> <tr> <td>803</td> <td>8</td> <td>85535</td> <td>902</td> <td>48</td> <td></td> </tr> <tr> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td></td> </tr> <tr> <td colspan="6">Base Memory : 640K</td> </tr> <tr> <td colspan="6">Extended Memory : 15380K</td> </tr> <tr> <td colspan="6">Expanded Memory : 0K</td> </tr> <tr> <td colspan="6">Other Memory : 384K</td> </tr> <tr> <td colspan="6"><hr/></td> </tr> <tr> <td colspan="6">Total Memory : 16384K</td> </tr> </tbody> </table>		CYLS.	HEADS	PRECOMP	LANDZONE	SECTORS	803	8	85535	902	48		0	0	0	0	0		Base Memory : 640K						Extended Memory : 15380K						Expanded Memory : 0K						Other Memory : 384K						<hr/>						Total Memory : 16384K					
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	PU/PD/+/- : Modify																																																						
	F3 : Toggle Calendar																																																						

ROM ISA BIOS (2C4K9D01)  
 CMOS SETUP UTILITY  
 AWARD SOFTWARE,INC.

STANDARD CMOS SETUP	SUPERVISOR PASSWORD
<b>BIOS FEATURES SETUP</b>	USER PASSWORD
CHIPSET FEATURES SETUP	IDE HDD AUTO DETECTION
POWER MANAGEMENT SETUP	SAVE & EXIT SETUP
LOAD BIOS DEFAULTS	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	
Esc : Quit	↑↓→← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Time, Date, Hard Disk Type...	

ROM ISA BIOS (2C4K9D01)  
 BIOS FEATURES SETUP  
 AWARD SOFTWARE,INC.

Virus Warning	: Disabled	System BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	Video BIOS Shadow	: Enabled
External Cache	: Enabled	C8000-CFFFF Shadow	: Disabled
Quick Power On Self Test	: Disabled	D0000-D7FFF Shadow	: Disabled
Boot Sequence	: C, A	D8000-DFFFF Shadow	: Disabled
Swap Floppy Drive	: Disabled	E0000-E7FFF Shadow	: Disabled
Boot Up Floppy Seek	: Disabled	E8000-EFFFF Shadow	: Disabled
Boot Up NumLock Status	: On		
Boot Up System Speed	: High		
IDE HDD Block Mode	: Enabled		
Gate A20 Option	: Normal		
Memory Parity Check	: Disabled	Esc : Quit	↑↓→← : Select Item
Typematic Rate Setting	: Disabled	F1 : Help	PU/PD/+/- : Modify
Typematic Rate (Chars/Sec)	: 8	F5 : Old Values	(Shift) F2 : Color
Typematic Rate (Msec)	: 250	F6 : Load BIOS Default	
Security Option	: Setup	F7 : Load Setup Default	

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 CHIPSET FEATURES SETUP  
 AWARD SOFTWARE,INC.

Auto Configuration	: Enabled	Internal Cache WB/WT	: WT
AT Bus Clock	: 7.19MHz	External Cache WB/WT	: WB
Cycle Check Point	: Fast	Cache Write Timing	: 0WS
ISA Write Cycle	: 0 WS	Cache Read Timing	: 1WS
18 Bit ISA I/O Command	: 0 WS	VESA L2 Cache Write	: Normal
18 Bit ISA Mem Command	: 0 WS	VESA L2 Cache Read	: Normal
32 Bit ISA Wait Time	: 8t	Shadow BIOS Cacheable	: Disabled
Internal ADS Delay	: Disabled	Memory Relocation	: Enabled
Hidden Refresh	: Disabled	Esc : Quit	↑↓→← : Select Item
Slow Refresh	: Disabled	F1 : Help	PU/PD/+/- : Modify
DRAM Read Timing	: Normal	F5 : Old Values	(Shift) F2 : Color
DRAM Write Timing	: Normal	F8 : Load BIOS Default	
RAS To CAS Delay	: 8t	F7 : Load Setup Default	

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STANDARD CMOS SETUP	SUPERVISOR PASSWORD
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ROM ISA BIOS (2C4K0D01)  
POWER MANAGEMENT SETUP  
AWARD SOFTWARE,INC.

Power Management	: Disabled	IRQ5 (LPT2)	: ON
PM Control by APM	: Yes	IRQ6 (FLOPPY Disk)	: ON
Video off Option	: Susp, Stdbby → off	IRQ7 (LPT1)	: ON
Video off Method	: V/H SYNC + Blank	IRQ8 (RTC Alarm)	: OFF
<b>** PM Timers **</b>		IRQ9 (iRQ2 Redir)	: ON
HDD Power Down	: Disabled	IRQ10 (Reserved)	: OFF
Doze Mode	: Disabled	IRQ11 (Reserved)	: OFF
Standby Mode	: Disabled	IRQ12 (PS/2 Mouse)	: ON
Suspend Mode	: Disabled	IRQ13 (Coprocessor)	: OFF
<b>** PM Events **</b>		IRQ14 (Hard Disk)	: ON
VGA & KB (80, 84)	: KB	Esc : Quit                    ↑↓→← : Select Item	
FDD (3FXh) & DRQ	: FDD/DRQ	F1 : Help                    PU/PD/+/- : Modify	
LPT & COM	: LPT/COM	F5 : Old Values            (Shift) F2 : Color	
HDD (1FXh)	: ON	F6 : Load BIOS Default	
IRQ1 (Keyboard)	: ON	F7 : Load Setup Default	
IRQ3 (COM2)	: ON		
IRQ4 (COM1)	: ON		

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