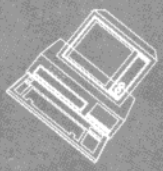
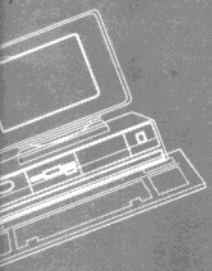
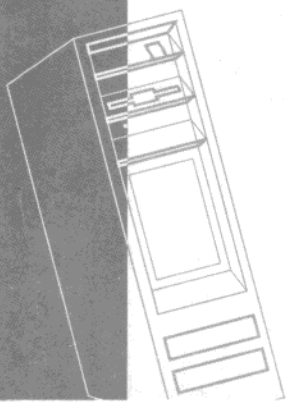


PCI/ISA - SC PENTIUM - P3

User Manual

PC Main Board





CONTENTS

1. INTRODUCTION

P5S5480P3 is a high performance, 100% PC/AT compatible, Intel's Pentium 75MHz/ 90MHz/100MHz enhanced CPU supportive.

Features

- Supports 64-bit Pentium processor data-bus
- Uses SiS 85C501/502/503 Chipset
- Supports 256K/512K/1M 2nd Level Cache, using 32Kx8/ 64Kx8/ 128Kx8 asynchronous SRAM
- Supports 4 ISA slots and 3 PCI slots (3 PCI masters)
- Three Integrated Posted Write Buffers and two Read Buffers increase system performance
- Almost zero wait state performance on CPU-to-memory and CPU-to-PCI writes
- Supports EPROM and 5V (or 12V) flash ROM BIOS
- Supports CPU SMM (System Management Mode)
- Supports CPU stop-clock function
- Supports 3 power saving modes : Doze mode, standby mode and suspend mode
- 3.3V for main system and 3.3V regulator on board
- 100% PC/AT compatible. Supports DOS, WindowNT, OS/2, UNIX and XENIX operation system
- Supports 2MB to 128MB of main memory
- Supports shadow RAM for system, adapter and video BIOS
- Rechargeable battery and external battery connector on board
- Standard reset, keylock and speaker connectors
- PCI QD8580 IDE on board
- Two-third of the baby AT size board (220mm x 260mm)

2. MAINBOARD LAYOUT

Layout Figure

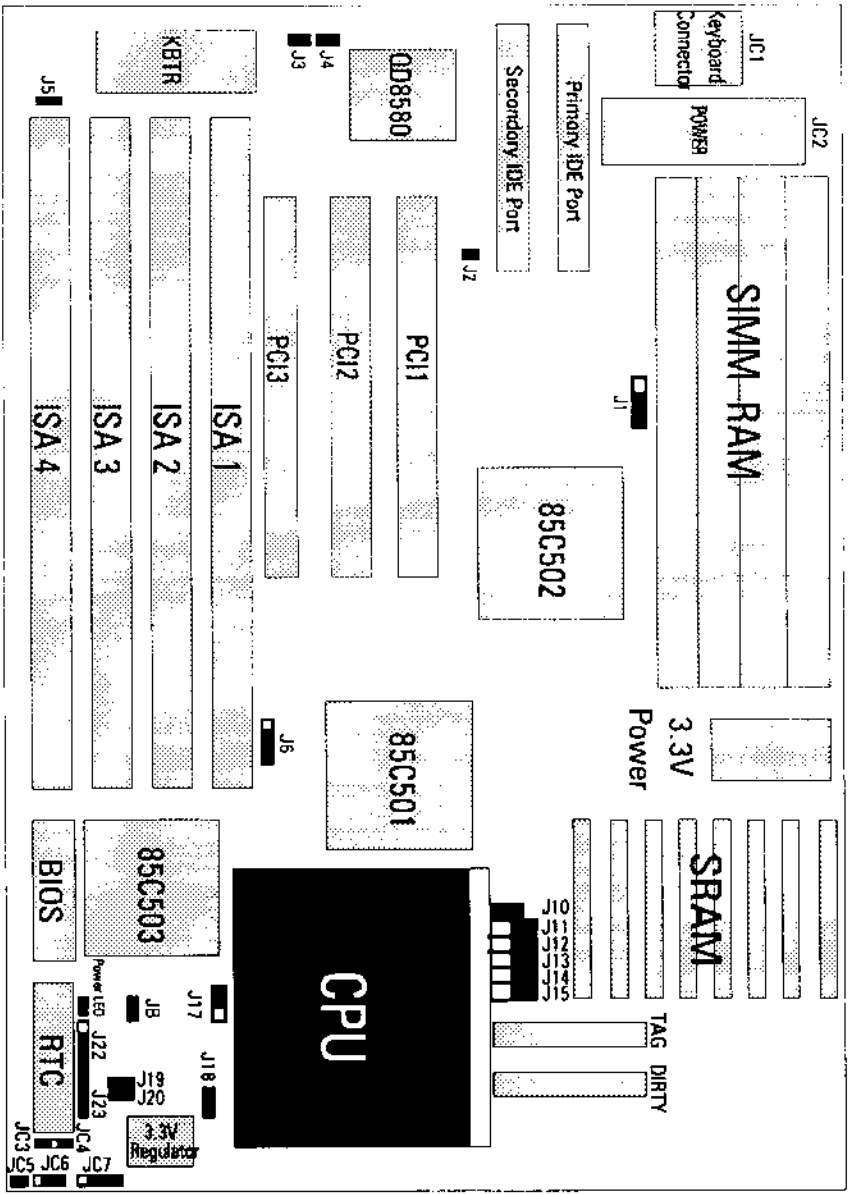


Figure 2-1 Mainboard Layout

Description

Jumper	Description	Setting
J1	DRAM Configuration	
	Bank 0 Bank 1	
	Single size Single/Double Size	1-2, 3-4
	Double size Single/Double size	2-3, 4-5
J2	HDD LED Connector	
J3	On board IDE : Enable	OPEN
	Disable	CLOSE
J4	Address assigned by post	OPEN
	1FX/3F6 and/or 17X/376	CLOSE
J5	Color	OPEN
	Monochrome	CLOSE
J6	Select 8042 RC	1-2
	Select break switch	2-3
J10	Turbo function : Disable	OPEN
	Enable	CLOSE
J11	Pipeline : Disable	1-2
	Enable	2-3
J12	CPU internal cache : write back	1-2
	: write through	2-3
J13	Always invalid	1-2
	Only invalid in write cycle	2-3
J14, 15	Cache memory configuration	(see P.3-2)
J17	Green control by STPCLK	1-2
	Green control by SMOUT	2-3
J18	External 3.3V power supply	OPEN
	On board 3.3V power supply	CLOSE
J19, J20	Clock select for CPU (75MHz, 90MHz, 100MHz)	(see P.3-2)
J22	5V Flash BIOS	2-3, 5-6
	12V Flash BIOS	1-2, 5-6
	EPROM	2-3, 4-5
J23	Clear CMOS	2-3(while power on)
	Normal	OPEN
JC1(Keyboard)	Keyboard connector	
JC2(Power)	Power connector	
JC3(Turbo LED)	Turbo LED	
JC4(Turbo)	Normal	1-2
	De -Turbo	2-3
JC5(Reset)	Reset Switch	
JC6(Speaker)	Speaker connector	
JC7(Keylock)	Keylock	
JB	Break Switch	

3. JUMPER CONFIGURATION

3.1 Memory Configuration

The P5S5480P3 main board supports 1MB(256KB x 32 bit single-side), 2MB(256KB x 32 bit double-side), 4MB(1MB x 32 bit single-side), 8MB(1MB x 32 bit double-side), 16MB(4MB x 32 bit single-side), 32MB(4MB x 32 bit double-side) and 64MB(16MB x 32 bit single-side) SIMM RAMs(72 pin) in memory devices respectively.

The total main memory size can be accommodated up to 128MB. A total of 22 different memory configurations are supported as shown in the following table:

Option	Bank0 S/D Bank		Bank1 S/D Bank		Total	J1
	SIMM1	SIMM2	SIMM3	SIMM4		
1	1M-S	1M-S			2MB	*
2	1M-S	1M-S	1M-S	1M-S	4MB	1-2, 3-4
3	2M-D	2M-D			4MB	*
4	2M-D	2M-D	2M-D	2M-D	8MB	2-3, 4-5
5	2M-D	2M-D	4M-S	4M-S	12MB	2-3, 4-5
6	2M-D	2M-D	8M-D	8M-D	20MB	2-3, 4-5
7	2M-D	2M-D	16M-S	16M-S	36MB	2-3, 4-5
8	4M-S	4M-S			8MB	*
9	4M-S	4M-S	4M-S	4M-S	16MB	1-2, 3-4
10	4M-S	4M-S	8M-D	8M-D	24MB	1-2, 3-4
11	4M-S	4M-S	16M-S	16M-S	40MB	1-2, 3-4
12	4M-S	4M-S	32M-D	32M-D	72MB	1-2, 3-4
13	8M-D	8M-D			16MB	*
14	8M-D	8M-D	8M-D	8M-D	32MB	2-3, 4-5
15	8M-D	8M-D	16M-S	16M-S	48MB	2-3, 4-5
16	8M-D	8M-D	32M-D	32M-D	80MB	2-3, 4-5
17	16M-S	16M-S			32MB	*
18	16M-S	16M-S	16M-S	16M-S	64MB	1-2, 3-4
19	16M-S	16M-S	32M-D	32M-D	96MB	1-2, 3-4
20	32M-D	32M-D			64MB	*
21	32M-D	32M-D	32M-D	32M-D	128MB	2-3, 4-5
22	64M-S	64M-S			128MB	*

Note: "*"-- Not care, "S" -- Single side, "D" -- Double side

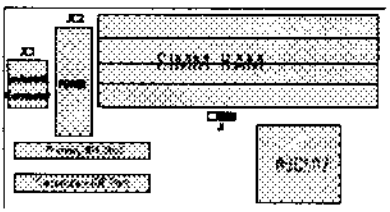


Figure 3-1 Memory Configuration

3.2 Cache Memory Configuration

(J14, J15, TAG)

	256KB 32Kx8	512KB 64Kx8	1MB 128Kx8
J14	1-2	2-3	2-3
J15	1-2	1-2	2-3
TAG	8Kx8	16Kx8	32Kx8

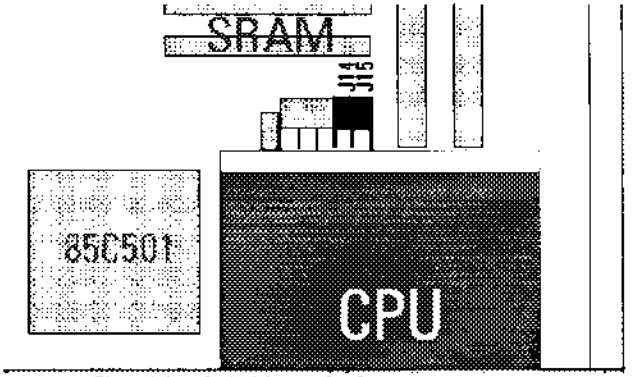


Figure 3-2 Cache Memory Configuration

3.3 CPU Clock Speed Selection

Clock Speed Selection	75MHz	90MHz	100MHz
J19	OPEN	OPEN	CLOSE
J20	OPEN	CLOSE	CLOSE

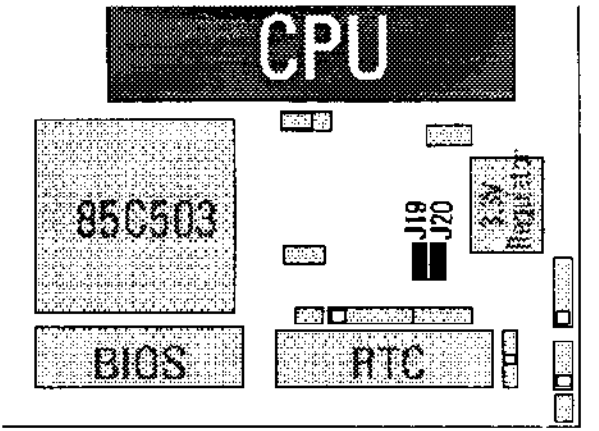


Figure 3-3 Configuration of Clock Speed Selection

3.4 Default Jumper Settings

Jumper	Normal Setting
J3	OPEN
J4	OPEN
J5	OPEN
J6	2-3
J10	CLOSE
J11	1-2
J12	1-2
J13	2-3
J14	1-2
J15	1-2
J17	1-2
J18	CLOSE
J19	OPEN
J20	CLOSE
J22	2-3, 4-5
J23	OPEN

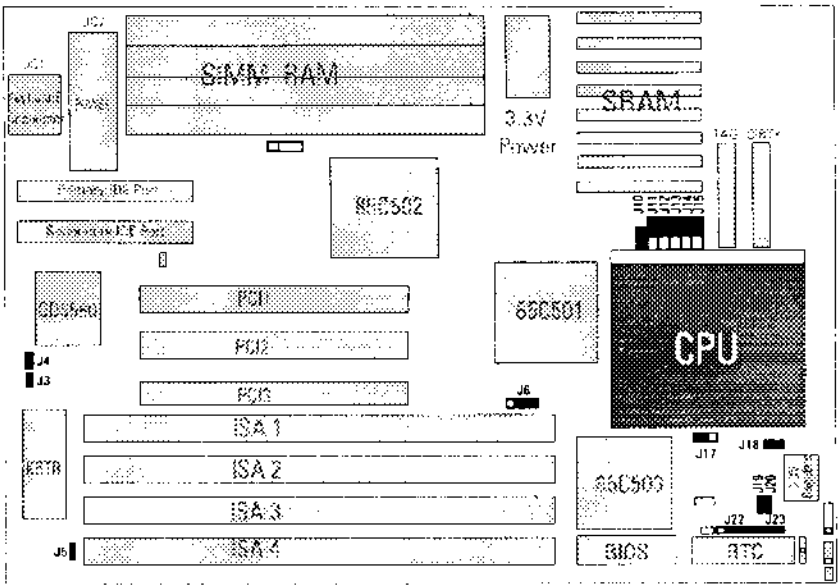


Figure 3-4 Default Jumper Settings

4. CONNECTORS PIN ASSIGNMENT

4.1 Power Connector (JC2(Power))

PIN NUMBER	FUNCTION
1	Power good
2	+5V
3	+12V
4	-12V
5	GND
6	GND
7	GND
8	GND
9	-5V
10	+5V
11	+5V
12	+5V

4.2 Keyboard Connector (JC1 (Keyboard))

PIN NUMBER	FUNCTION
1	CLOCK
2	DATA
3	NC
4	GND
5	+5V

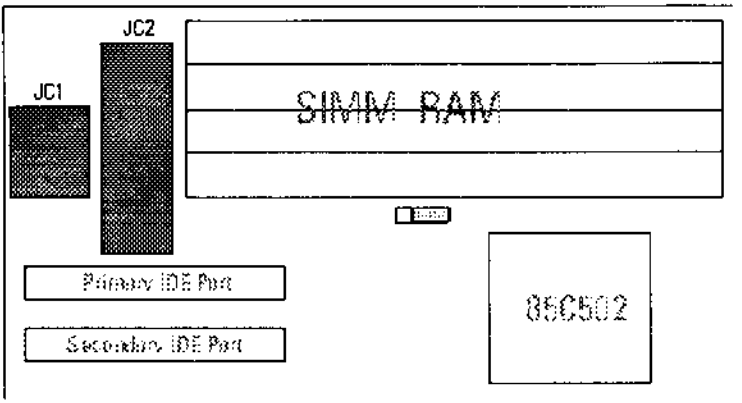


Figure 4-1 Power & Keyboard Connector

4.3 Turbo Switch Connector (JC4 (Turbo))

TURBO SWITCH	SPEED	TURBO LED
1-2	HIGH	ON
2-3	LOW	OFF

*Version A chipset doesnot support De-turbo function

4.4 Turbo LED Connector (JC3 (Turbo LED))

PIN NUMBER	FUNCTION
1	LED CATHODE
2	LED ANODE

4.5. Reset Switch Connector (JC5 (Reset))

JC5	FUNCTION
CLOSE ONCE	RESET THE SYSTEM
OPEN	NORMAL

4.6. Keylock Connector (JC7 (Keylock))

PIN NUMBER	FUNCTION
1	+5V
2	NC
3	GND
4	KEYLOCK
5	GND

4.7 Power LED Connector (Power LED)

PIN NUMBER	FUNCTION
1	LED ANODE
2	LED CATHODE

4.8. Speaker Connector (JC6 (Speaker))

PIN NUMBER	FUNCTION
1	SPKDATA
2	GND
3	GND
4	VCC

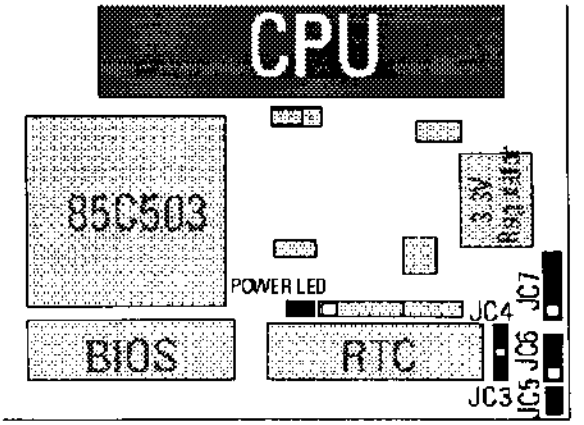


Figure 4-2 The figure of the Connectors

4.9 Flash ROM Function(J22)

P5S5480P3 supports Flash ROM.

PIN NUMBER	FUNCTION
2-3, 5-6	5V FLASH
1-2, 5-6	12V FLASH

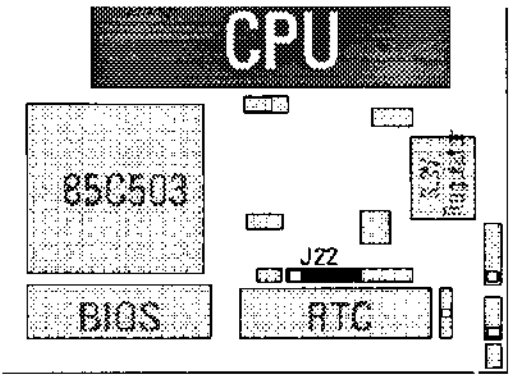


Figure 4-3 Flash ROM Function Jumper

4.10 On Board HDD LET (J2)

PIN NUMBER	FUNCTION
1	LED ANODE
2	LED CATHODE

5. SYSTEM RECONFIGURATION

5.1. CMOS Setup Utility (AWARD BIOS)

During Power On System memory Test, hit <Del> key will see the following menu :

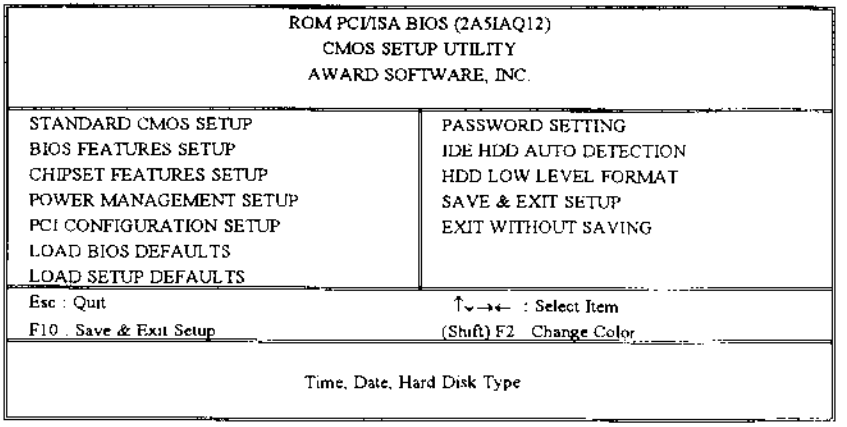


Figure 5-1 The screen of CMOS Setup Utility

5.2. Standard CMOS Setup

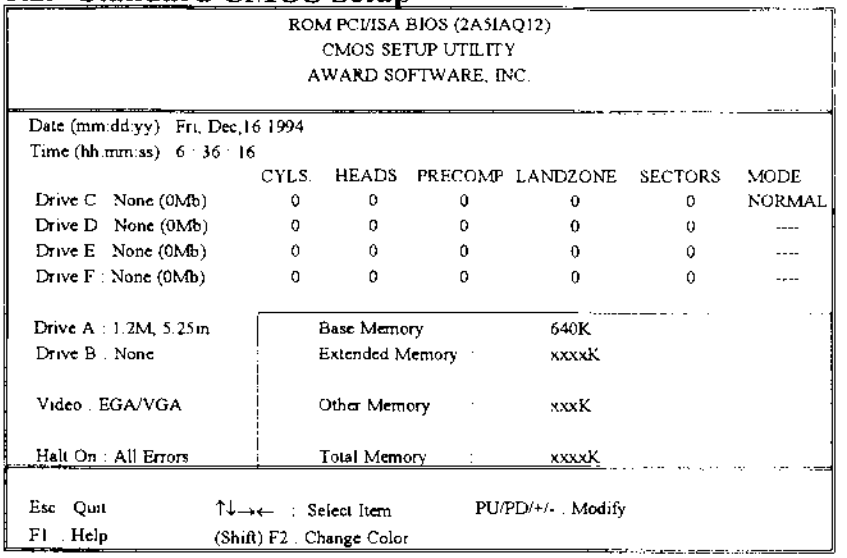


Figure 5-2 The screen of Standard CMOS Setup

Note : The BIOS supports 3 types of Harddisk :

1. Normal : For HDD's size smaller than 528MB.
2. LBA (Logical Block Addressing) : For HDD's size bigger than 528MB.
3. Large : For some HDDs contain more than 1024 cylinder without LBA support.

5.3. BIOS Features Setup

ROM PCI/ISA BIOS (2A5IAQ12)
BIOS FEATURES SETUP
AWARD SOFTWARE, INC

Virus Warning	: Disabled	Video BIOS Shadow	Enabled
CPU Internal Cache	: Enabled	C8000 - CBFFF Shadow	Disabled
External Cache	: Enabled	CC000 - CFFFF Shadow	Disabled
Quick Power On Self Test	Disabled	D0000 - D3FFF Shadow	Disabled
Boot Sequence	: A:, C:	D4000 - D7FFF Shadow	: Disabled
Swap Floppy Drive	: Disabled	D8000 - DBFFF Shadow	Disabled
Boot Up Floppy Seek	. Enabled	DC000 - DFFFF Shadow	Disabled
Boot Up NumLock Status	. On		
Boot Up System Speed	. High		
IDE HDD Block Mode	Disabled		
Gate A20 Option	: Fast		
Memory Parity Check	Disabled		
Typematic Rate Setting	Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250	Esc . Quit	↑↓→← : Select Item
Security Option	. Setup	F1 . Help	PU/PD/+/- Modify
		F5 : Old Values	(Shift) F2 Color
IDE Second Channel Control	: Enabled	F6 Load BIOS Defaults	
		F7 : Load Setup Defaults	

Figure 5-3 The screen of BIOS Features Setup

5.4. CHIPSET Features Setup

ROM PCI/ISA BIOS (2A5IAQ12)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC

Auto Configuration	. Enabled	Latency from ADS# status	3T
		Refresh When CPU Hold	Disabled
Read CAS Pulse Width	: 4T	Snoop Filter	Disabled
DRAM Write CAS Witch	: 2T	Post Write CAS Active	2T
L1 Cache Update Mode	WB	CPU/PCI Post Write Delay	2T
L2 Cache Update Mode	: WB	PCI Clock Frequency	. CPUCLK/2
L2(WB) Tag Bit Lenth	. 8bit	Max. Burstable Range	0 5KB
SRAM Speed Option	. Faster	CPU/PCI Burst Mem Write	Enabled
SRAM Burst R/W Cycle	. 2T	CPU/PCI Post Mem. Write	Enabled
Burst SRAM Burst Cycle	. 4-1-1-1	ISA Bus Clock Frequency	PCI CLK/4
Refresh RAS Active Time	: 5T	Non-Cacheable Block 1	Disabled
DRAM RAS To CAS Delay	3T	Block 1 Start Address	0500000H
DRAM RAS Precharge Time	. 5T	Block 1 Size	64KB
Gate A20 Emulation	. Enabled	Esc . Quit	↑↓ ⏭ . Select Item
Fast Reset Emulation	. Enabled	F1 . Help	PU/PD/+/- Modify
Slow Refresh (1-4)	. Disabled	F5 Old Values	(Shift) F2 Color
System BIOS Cacheable	: Disabled	F6 . Load BIOS Defaults	
Video BIOS Cacheable	: Disabled	F7 Load Setup Defaults	

Figure 5-4 The screen of CHIPSET Features Setup

5.5. Power Management Setup

ROM PCI/ISA BIOS (2A5IAQ12)
CMOS SETUP UTILITY
POWER MANAGEMENT SETUP

Power Management	Disable	VGA Activity	Disabled
PM Control by APM	Yes	IRQ3 (COM2)	Enabled
Video Off Option	Susp, Stby > Off	IRQ4 (COM1)	Enabled
Video Off Method	V/H SYNC+Blank	IRQ5 (LPT 2)	Enabled
Suspend Switch	Enable	IRQ6 (Floppy Disk)	Enabled
Doze Speed (div by)	2	IRQ7 (LPT1)	Enabled
Stdby Speed (div by)	3	IRQ8 (RTC Alarm)	Disabled
		IRQ9 (IRQ2 Redir)	Enabled
** PM Timer **		IRQ10 (Reserved)	Enabled
HDD Power Down	Disable	IRQ11 (Reserved)	Enabled
Doze Mode	Disable	IRQ12 (PS/2 Mouse)	Enabled
Standby Mode	Disable	IRQ13 (Coprocessor)	Enabled
Suspend Mode	Disable	IRQ14 (Hard Disk)	Enabled
		IRQ15 (Reserved)	Enabled
** PM Events **			
COM Ports Activity	Enabled	Esc : Quit	↑→←↓ : Select Item
LPT Ports Activity	Enabled	F1 : Help	PU/PD/+/- : Modify
HDD Ports Activity	Enabled	F5 : Old Values	(Shift) F2 : Color
PCI/ISA Master Act.	Enabled	F6 : Load BIOS Defaults	
IRQ1-15 Activity	Enabled	F7 : Load Setup Defaults	

Figure 5-5 The screen of Power Management Setup

Power Management

Disable Global Power Management will be disabled

User Define Users can configure their own power management

Min Saving Pre-defined timer values are used such that all timers are in their MAX value.

Max Saving Pre-defined timer values are used such that all timers are in their MIN value.

PM control by APM

No System BIOS will ignore APM.

Yes System BIOS will wait for APM's prompt before it enters any PM modes, e.g. DOZE, STANDBY or SUSPEND.

Note: If APM is installed, and if there is a task running, even the timer is time-out, the APM will not prompt the BIOS to put the system into any power saving mode

Note: If APM is not installed, this option has no effect.

Video Off Option

Always On	System BIOS will never turn off the screen.
Suspend-> Off	Screen off when system is in SUSPEND mode.
Susp, Stby-> Off	Screen off when system is in STANDBY or SUSPEND mode.
All Modes-> Off	Screen off when system is in DOZE, STANDBY or SUSPEND mode.

Video Off Method

Blank Screen	The system BIOS will only blank off the screen when disabling video.
V/H SYNC+Blank	In addition to (1), BIOS will also turn off the V-SYNC & H-SYNC signals from VGA cards to monitor. Note: Green monitors detect the V/H SYNC signals to turn off its electron gun.

Suspend Switch

Enable	If the user presses this button then the system will enter into suspend mode.
Disable	No function even the user presses a button.

Doze Speed(div by)

1~8	This function is for P54C CPU only and it will be automatically configured by BIOS, the value is "STPCLK # Asserted Timer divided by STPCLK # de-asserted timer.

Stdby Speed(div by)

1~8	Same as above.

PM Timer :

HDD Power Down

Disable	HDD's motor will not be turned off.
When Suspend	HDD is turned off when Suspend Mode is being active.
1 Min~15Min	Defines the continuous HDD idle time before the HDD entering Power Saving Mode(motor off).
Doze Mode	Pre-defines the active timer value of Doze Mode (20sec~40min).
Standby Mode	Pre-defines the active timer value of Standby Mode (20sec~40min).

Suspend Mode Pre-defines the active timer value of Suspend Mode (20sec~40min).

PM Events :

Disable The specified event's activity will not affect the PM timer.

Enable The specified event's activity causes the PM timers to be relocated. i.e. the Power Management Unit(PMU) monitors the PM timers to be reloaded. i.e. the Power Management Unit(PMU) monitors the specified activities as PM events.

5.6 PCI Configuration Setup

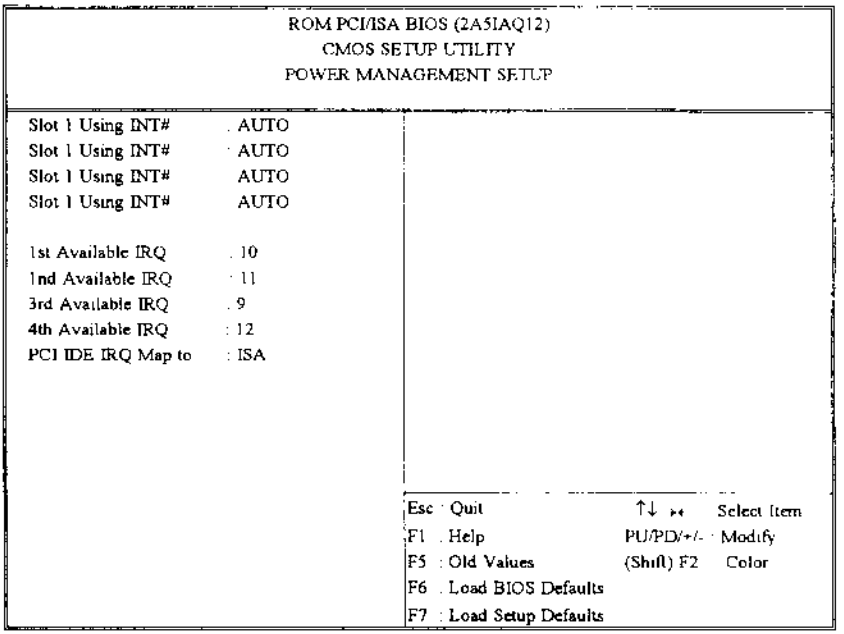


Figure 5-6 The screen of PCI Configuration Setup

If using on Board QD8580, "PCI IDE IRQ Map to " must be set to "ISA". If using PCI IDE or SCSI card, set "PCI IDE IRQ Map to " to "PCI-AUTO" (Ensure the card used is fully compatible with PCI Spec 2.0). Otherwise, set "PCI IDE IRQ Map to" to the corresponding slot, which the IDE card is on.

When using non-PCI slot with an I/O card, press F7 to load setup defaults.

5.7 Loading Default BIOS

Choosing the "LOAD BIOS DEFAULTS" will load the default values which saved in the BIOS ROM. If the stored settings are corrupted or lost (and therefore unusable), the default BIOS settings will be loaded automatically when the computer is turned on. Those default settings are non-optimal with all high performance feature turning off. This is useful when having problems with the current system configuration and finding out the reason.

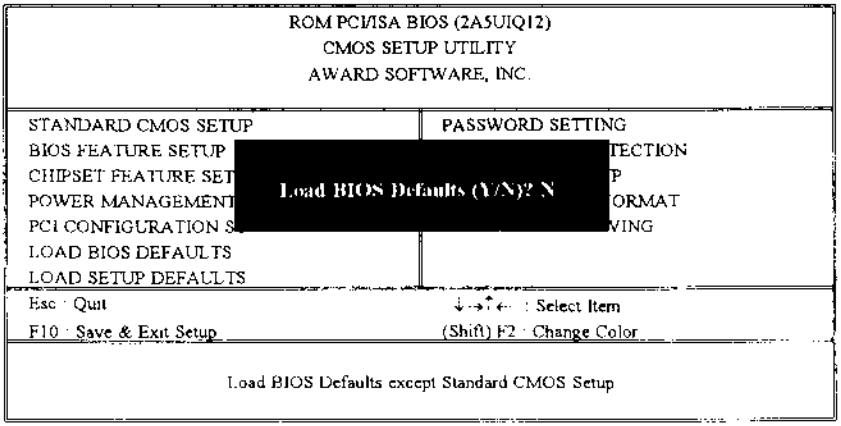


Figure 5-7 The screen of Loading Default BIOS Settings

5.8. Loading Default Setup

The "LOAD SETUP DEFAULTS" will load the default BIOS setting with selected high performance features turning on.

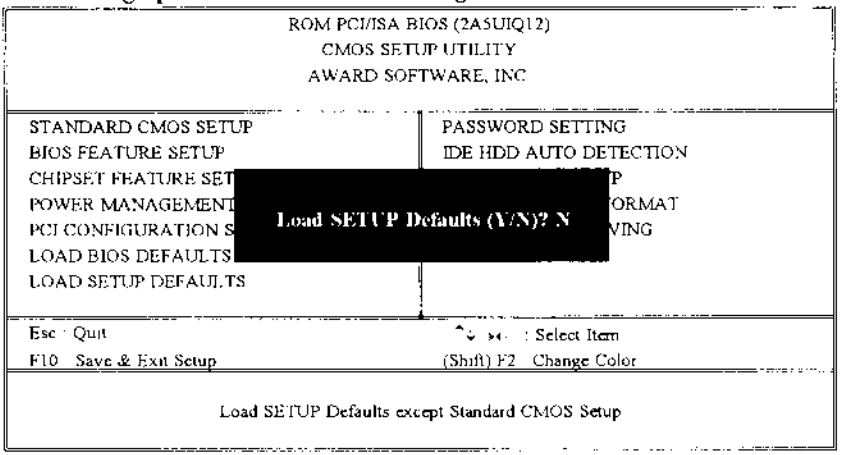


Figure 5-8 The screen of Loading Default Setup

5.9. Password Setting

Use "PASSWORD SETTING" to set a password. The system is set up with password disabled. If a password is wanted, type the alphanumeric characters at the prompt and make the configuration. Then set the "Security Option" in BIOS Features Setup to "system".

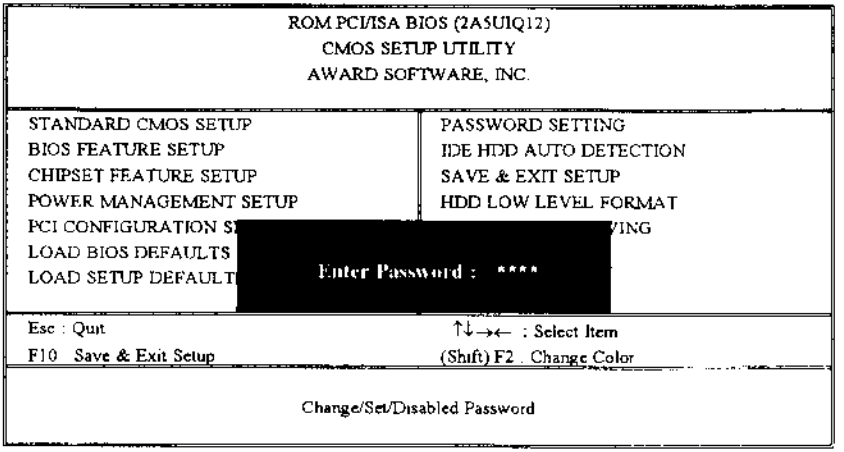


Figure 5-9 The screen of Password Setup

5.10. IDE HDD Auto Detection

If the system has an IDE hard drive, use this utility to auto detect its parameters(P5S5480P3 supports 4 HDD) and saved them in the standard CMOS Setup automatically.

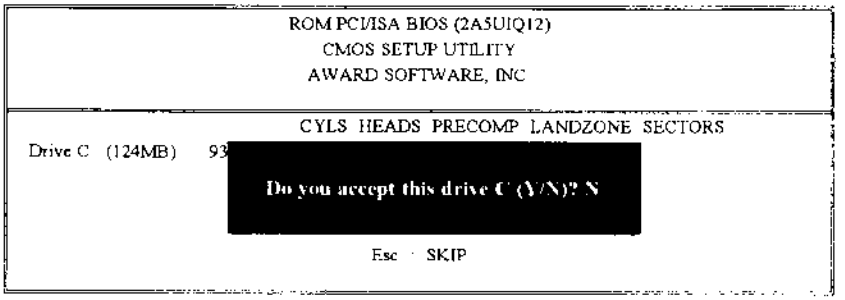


Figure 5-10 The screen of IDE HDD Auto Detection

5.11 HDD Low Level Format

After specified the Hard Disk type, use this utility to choose the item and finish the Low Level Format. See the screen shown as following:

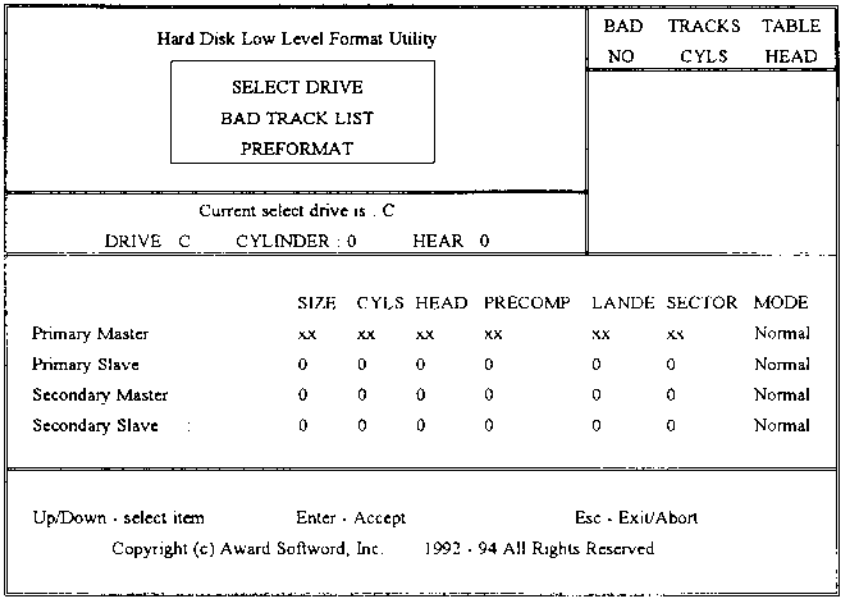


Figure 5-11 The screen of HDD Low Level Format

5.12. Save & Exit Setup

After pressing the <Enter> key at Save and Exit Setup, the screen is shown as in Figure 5-12 :

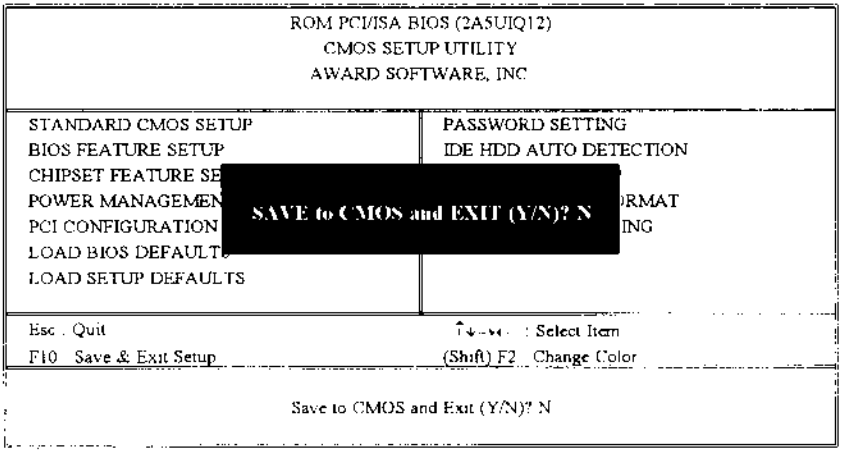


Figure 5-12 The screen of Save & Exit Setup

5.13 Exit Without Setup

After pressing the <Enter> key at Exit Without Setup, the screen is shown as in Figure 5-13 :

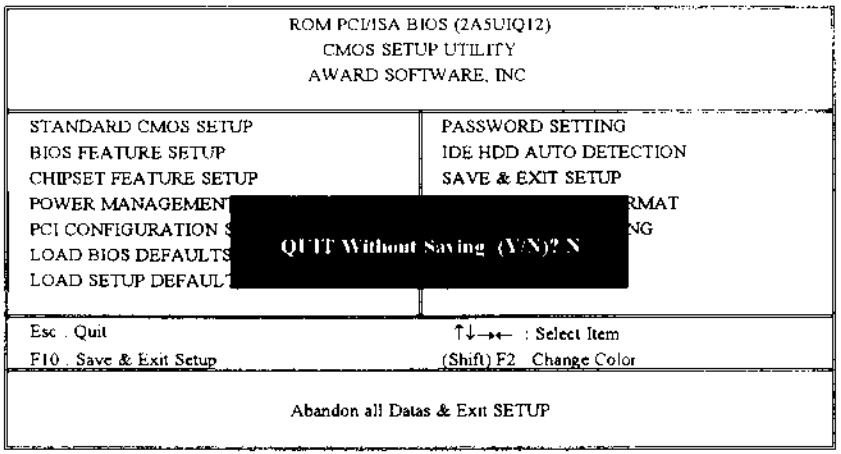


Figure 5-13 The screen of Exit Without Setup

6. QD8580 INTRODUCTION

Features

- Fully compatible with PCI Spec V2.0
- Fully compatible with PCI IDE controller Spec Rev 0.9
- Real auto-configuration supports Plug and Play
- Operates up to 33MHz bus speed
- Fully supports enhanced IDE mode 3/4
- Two IDE ports support up to 4 hard disks
- Supports both 32-bit and 16-bit Host data transfer
- Read-ahead FIFO and post-write buffer improve data transfer rate
- Auto-sensing and setting IDE timing to get better performance
- Software drivers available for DOS, Windows 3.1/3.11, Windows NT and OS/2 2.1

Jumper Setting

Jumper	Setting	Description
J3	OPEN	Enable on Board QD8580
	CLOSE	Disable on Board QD8580
J4	OPEN	ADDR : Assigned by post (Relocatable)
	CLOSE	ADDR : 1FX / 3F6 and/or 17X / 376 (Fixed)

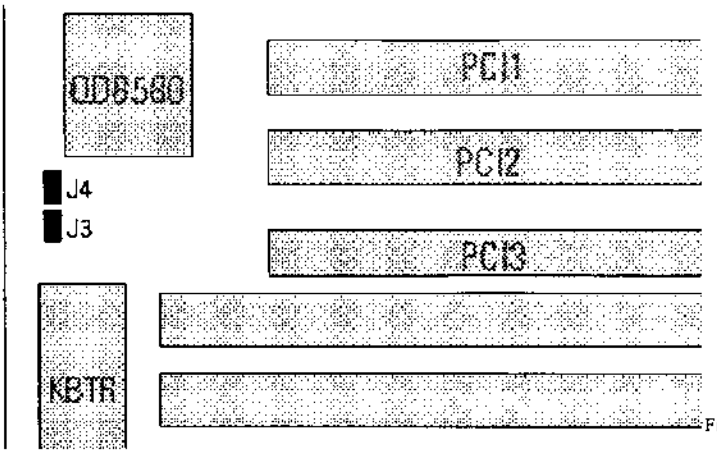


Figure 6-1

QD8580 Setting Configuration

7. APPENDIX

Drive Table

Type	Cylinders	Heads	Write Precomp	LZ	Sector	Size
1	306	4	128	305	17	10MB
2	615	4	300	615	17	20MB
3	615	6	300	615	17	31MB
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	901	17	112MB
10	820	3	65535	820	17	20MB
11	855	5	65535	855	17	35MB
12	855	7	65535	855	17	50MB
13	306	8	128	319	17	20MB
14	733	7	65535	733	17	43MB
15	---	---	---	---	--	---
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	1023	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
47	---	---	---	---	---	---

P/N 430-01006-201
ML-P5S5480P3 V1.0