

5AX

USER'S MANUAL

- * Support Intel Pentium, MMX, Cyrix/IBM, 6x86MX, MII, AMD K6, K6-2 K6-III , IDT Winchip 2, IDT Winchip 3, RISE MP6 CPUs.
- * Support 3 Steps ACPI LED.
- * Support Parity check or Ecc Function (at 66, 75 MHz) .
- * Support Fully AGP 1.0 Specification.
- * Support switching mode Voltage regulator on Board (1.3V~3.5V) .
- * Support 66/75/83/95 MHz and 100MHz.
- * Support Modem Ring On (COM A,COM B).
- * Support Wake on Lan. (Your ATX power supply must support larger than 720 mA 5V Stand-By current).
- * Support Keyboard Power ON/OFF function. (Your ATX power supply supports larger than 300 mA 5V Stand-By current) (Dependent on the specification of keyboards).
- * Thermal Protection

Pentium[®] Processor PCI - ISA BUS MAINBOARD
REV. 4.1 Second Edition

R-41-02-090824

The author assumes no responsibility for any errors or omissions which may appear in this document nor does it make a commitment to update the information contained herein.

*THIRD-PARTY BRANDS AND NAMES ARE THE PROPERTY OF THEIR RESPECTIVE OWNERS.

August 24, 1999 Taipei, Taiwan

I. CPU Jumper Setting Table:

SW: CPU INT./ EXT. FREQ. RATIO

O: ON

X: OFF

SW	4	5	6	7	8	SW	4	5	6	7	8
1.3V	X	X	X	X	O	2.5V	O	X	O	X	X
1.4V	X	O	X	X	O	2.6V	X	O	O	X	X
1.5V	X	X	O	X	O	2.7V	O	O	O	X	X
1.6V	X	O	O	X	O	2.8V	X	X	X	O	X
1.7V	X	X	X	O	O	2.9V	O	X	X	O	X
1.8V	X	O	X	O	O	3.0V	X	O	X	O	X
1.9V	X	X	O	O	O	3.1V	O	O	X	O	X
2.0V	X	O	O	O	O	3.2V	X	X	O	O	X
2.1V	O	X	X	X	X	3.3V	O	X	O	O	X
2.2V	X	O	X	X	X	3.4V	X	O	O	O	X
2.3V	O	O	X	X	X	3.5V	O	O	O	O	X
2.4V	X	X	O	X	X	---	---	---	---	---	---

CPU	AGP	JP7	JP8	JP9	JP10	CPU	AGP	JP7	JP8	JP9	JP10
66	66	2-3	2-3	2-3	1-2	110	73	1-2	1-2	1-2	2-3
75	60	1-2	2-3	2-3	2-3	115	77	1-2	2-3	1-2	1-2
75	75	2-3	1-2	2-3	1-2	120	80	1-2	2-3	1-2	2-3
83	66	1-2	2-3	2-3	1-2	125	41	2-3	1-2	1-2	1-2
95	63	1-2	1-2	2-3	2-3	130	43	2-3	1-2	1-2	2-3
100	66	1-2	1-2	2-3	1-2	135	45	2-3	2-3	1-2	1-2
105	70	1-2	1-2	1-2	1-2	140	47	2-3	2-3	1-2	2-3

SW	1	2	3
X1.5	X	X	X
X2	O	X	X
X2.5	O	O	X
X3	X	O	X
X3.5	X	X	X
X4	O	X	O
X4.5	O	O	O
X5	X	O	O
X5.5	X	X	O

★ Note: We don't recommend you to setup your system speed to 105 , 110 , 115 , 120 , 125 , 130 , 135 or 140 MHz because these frequencies are not the standard specifications for CPU, Chipset and most of the peripherals. Whether your system can run under 105, 110, 115, 120, 125, 130, 135 or 140 MHz properly will depend on your hardware configurations: CPU, SDRAM,

Cards, etc.

II. Quick Installation Guide:**O: ON****X: OFF**

CPU \ SW	1	2	3	4	5	6	7	8	JP7	JP8	JP9	JP10
1. Pentium [®] 133 MHz	O	X	X	O	O	O	O	X	2-3	2-3	2-3	1-2
2. Pentium [®] 166 MHz	O	O	X	O	O	O	O	X	2-3	2-3	2-3	1-2
3. Pentium [®] 200 MHz	X	O	X	O	O	O	O	X	2-3	2-3	2-3	1-2
4. Intel MMX-166MHz	O	O	X	X	X	X	O	X	2-3	2-3	2-3	1-2
5. Intel MMX-200MHz	X	O	X	X	X	X	O	X	2-3	2-3	2-3	1-2
6. Intel MMX-233MHz	X	X	X	X	X	X	O	X	2-3	2-3	2-3	1-2
7. AMD-K6/166 (2.9V)	O	O	X	O	X	X	O	X	2-3	2-3	2-3	1-2
8. AMD-K6/200 (2.9V)	X	O	X	O	X	X	O	X	2-3	2-3	2-3	1-2
9. AMD-K6/233 (3.2V)	X	X	X	X	X	O	O	X	2-3	2-3	2-3	1-2
10. AMD-K6/233 (66*3.5 2.2V)	X	X	X	X	O	X	X	X	2-3	2-3	2-3	1-2
11. AMD-K6/266 (66*4 2.2V) AMD-K6-2/266 (66*4 2.2V)	O	X	O	X	O	X	X	X	2-3	2-3	2-3	1-2
12. AMD-K6/300 (66*4.5 2.2V)	O	O	O	X	O	X	X	X	2-3	2-3	2-3	1-2
13. AMD-K6/300 (100*3 2.2V) AMD-K6-2/300 (100*3 2.2V)	X	O	X	X	O	X	X	X	1-2	1-2	2-3	1-2
14. AMD-K6-2/333 (66*5 2.2V)	X	O	O	X	O	X	X	X	2-3	2-3	2-3	1-2
15. AMD-K6-2/333 (95*3.5 2.2V)	X	X	X	X	O	X	X	X	1-2	1-2	2-3	2-3
16. AMD-K6-2/350 (100*3.5 2.2V)	X	X	X	X	O	X	X	X	1-2	1-2	2-3	1-2
17. AMD-K6-2/366 (66*5.5 2.2V)*	X	X	O	X	O	X	X	X	2-3	2-3	2-3	1-2
18. AMD-K6-2/380 (95*4 2.2V)	O	X	O	X	O	X	X	X	1-2	1-2	2-3	2-3
19. AMD-K6-2/400 (100*4 2.2V)	O	X	O	X	O	X	X	X	1-2	1-2	2-3	1-2
20. AMD-K6-2/450 (100*4.5 2.2V)	O	O	O	X	O	X	X	X	1-2	1-2	2-3	1-2
21. AMD-K6-2/450 (100*4.5 2.4V)	O	O	O	X	X	O	X	X	1-2	1-2	2-3	1-2
22. AMD-K6-2/475 (95*5 2.2V)*	X	O	O	X	O	X	X	X	1-2	1-2	2-3	2-3
23. AMD-K6-2/475 (95*5 2.4V)*	X	O	O	X	X	O	X	X	1-2	1-2	2-3	2-3
24. AMD-K6-2/500 (100*5 2.2V)*	X	O	O	X	O	X	X	X	1-2	1-2	2-3	1-2
25. AMD-K6-2/500 (100*5 2.4V)*	X	O	O	X	X	O	X	X	1-2	1-2	2-3	1-2
26. AMD-K6-2/550 (100*5.5 2.2V)*	X	X	O	X	O	X	X	X	1-2	1-2	2-3	1-2
27. AMD-K6-III/400 (100*4 2.2V)	O	X	O	X	O	X	X	X	1-2	1-2	2-3	1-2

Quick Installation Guide

28. AMD-K6-III/400 (100*4 2.4V)	O	X	O	X	X	O	X	X	1-2	1-2	2-3	1-2
29. AMD-K6-III/450 (100*4.5 2.2V)*	O	O	O	X	O	X	X	X	1-2	1-2	2-3	1-2
30. AMD-K6-III/450 (100*4.5 2.4V)*	O	O	O	X	X	O	X	X	1-2	1-2	2-3	1-2
31. AMD-K6-III/475 (95*5 2.2V)*	X	O	O	X	O	X	X	X	1-2	1-2	2-3	2-3
32. AMD-K6-III/475 (95*5 2.4V)*	X	O	O	X	X	O	X	X	1-2	1-2	2-3	2-3
33. AMD-K6-III/500 (100*5 2.2V)*	X	O	O	X	O	X	X	X	1-2	1-2	2-3	1-2
34. AMD-K6-III/500 (100*5 2.4V)*	X	O	O	X	X	O	X	X	1-2	1-2	2-3	1-2

CPU	SW	1	2	3	4	5	6	7	8	JP7	JP8	JP9	JP10
35. AMD-K6-III/550 (100*5.5 2.2V)*		X	X	O	X	O	X	X	X	1-2	1-2	2-3	1-2
36. Cyrix/IBM 6x86MX-PR166 (66*2 2.9V)		O	X	X	O	X	X	O	X	2-3	2-3	2-3	1-2
37. Cyrix/IBM 6x86MX-PR200 (66*2.5 2.9V)		O	O	X	O	X	X	O	X	2-3	2-3	2-3	1-2
38. Cyrix/IBM 6x86MX-PR200 (75*2 2.9V)		O	X	X	O	X	X	O	X	1-2	2-3	2-3	2-3
39. Cyrix/IBM 6x86MX-PR233 (66*3 2.9V)		X	O	X	O	X	X	O	X	2-3	2-3	2-3	1-2
40. Cyrix/IBM 6x86MX-PR233 (75*2.5 2.9V)		O	O	X	O	X	X	O	X	1-2	2-3	2-3	2-3
41. Cyrix/IBM 6x86MX-PR233 (83*2 2.9V)		O	X	X	O	X	X	O	X	1-2	2-3	2-3	1-2
42. Cyrix/IBM 6x86MX-PR266 (66*3.5 2.9V)		X	X	X	O	X	X	O	X	2-3	2-3	2-3	1-2
43. Cyrix/IBM 6x86MX-PR266 (75*3 2.9V)		X	O	X	O	X	X	O	X	1-2	2-3	2-3	2-3
44. Cyrix/IBM 6x86MX-PR266 (83*2.5 2.9V)		O	O	X	O	X	X	O	X	1-2	2-3	2-3	1-2
45. Cyrix Mc ⁴ PR300(66*3.5 2.9V)		X	X	X	O	X	X	O	X	2-3	2-3	2-3	1-2
46. Cyrix Mc ⁴ PR333(66*4 2.9V)		O	X	O	O	X	X	O	X	2-3	2-3	2-3	1-2
47. Cyrix Mc ⁴ PR333(83*3 2.9V)		X	O	X	O	X	X	O	X	1-2	2-3	2-3	1-2

48. Cyrix Mc ϕ PR333(75*3.5 2.9V)	X	X	X	O	X	X	O	X	1-2	2-3	2-3	2-3
49. Cyrix Mc ϕ PR366 * (100*2.5 2.9V)	O	O	X	O	X	X	O	X	1-2	1-2	2-3	1-2
50. Cyrix Mc ϕ PR400 * (100*3 2.9V)	X	X	X	O	X	X	O	X	1-2	1-2	2-3	1-2
51. IDT Winchip 2-200 (66*3 3.5V)	X	O	X	O	O	O	O	X	2-3	2-3	2-3	1-2
52. IDT Winchip 2-200 (100*2 3.5V)*	O	X	X	O	O	O	O	X	1-2	1-2	2-3	1-2
53. IDT Winchip 2-225 (75*3 3.5V)	X	O	X	O	O	O	O	X	1-2	2-3	2-3	2-3
54. IDT Winchip 2-233 (66*3.5 3.5V)*	X	X	X	O	O	O	O	X	2-3	2-3	2-3	1-2
55. IDT Winchip 2-233 (100*2.33 3.5V)*	X	O	O	O	O	O	O	X	1-2	1-2	2-3	1-2
56. IDT Winchip 2-266 (66*4 3.5V)	O	X	O	O	O	O	O	X	2-3	2-3	2-3	1-2
57. IDT Winchip 2-266 (100*2.66 3.5V)*	X	X	O	O	O	O	O	X	1-2	1-2	2-3	1-2
58. IDT Winchip 2-300 (100*2.5 3.5V)*	O	O	X	O	O	O	O	X	1-2	1-2	2-3	1-2
CPU \backslash SW	1	2	3	4	5	6	7	8	JP7	JP8	JP9	JP10
59. IDT Winchip 3-266 (100*2.33 2.8V)*	X	O	O	X	X	X	O	X	1-2	1-2	2-3	1-2
60. RISE MP6-266 (100*2 2.8V)*	O	X	X	X	X	X	O	X	1-2	1-2	2-3	1-2

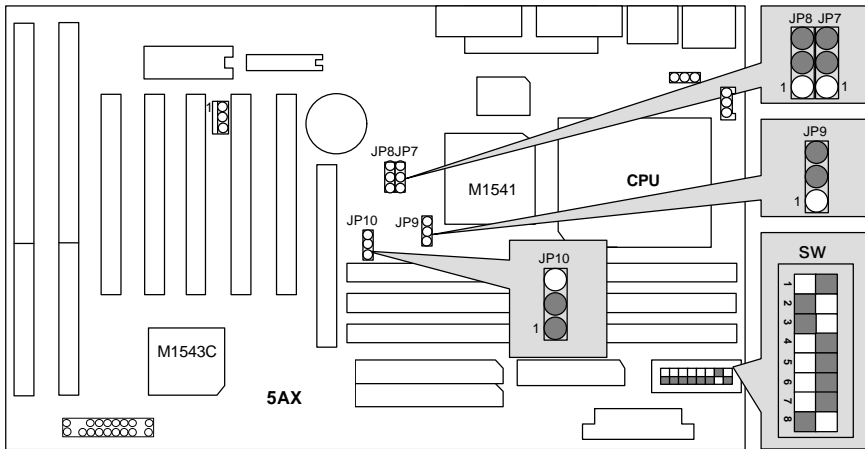
* Note: If Cyrix 6x86 is being used, please check the CPU Date Code after 605.

⚠ The default setting is 100*3 at 2.2V for AMD K6/300 and AMD K6-2/300

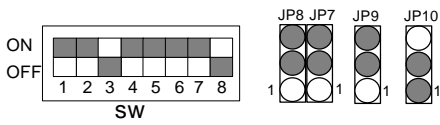
CPU \backslash SW	1	2	3	4	5	6	7	8	JP7	JP8	JP9	JP10
AMD-K6/300 (100*3 2.2V) AMD-K6-2/300 (100*3 2.2V)	X	O	X	X	O	X	X	X	1-2	1-2	2-3	1-2

⚠ The settings of the processors marked with "*" above are just for your reference, these processors have not been tested yet !

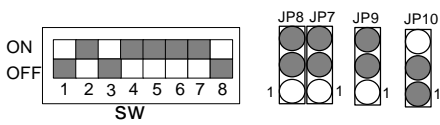
1. Pentium[®] 133 MHz



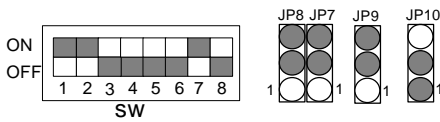
2. Pentium[®] 166MHz



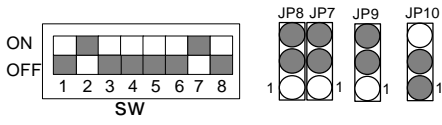
3. Pentium[®] 200 MHz



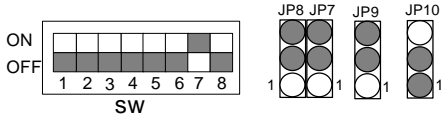
4. Intel MMX-166 MHz



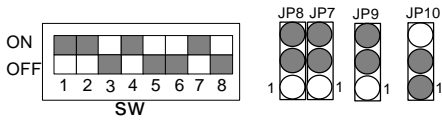
5. Intel MMX-200 MHz



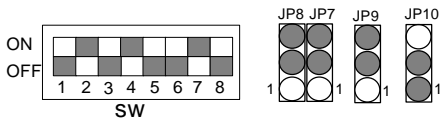
6. Intel MMX-233 MHz



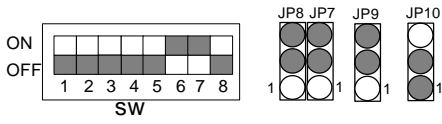
7. AMD-K6/166 (2.9V)



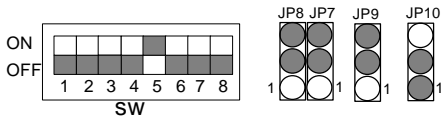
8. AMD-K6/200 (2.9V)



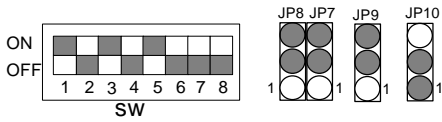
9. AMD-K6/233 (3.2V)



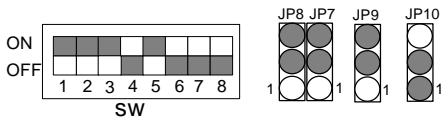
10. AMD-K6/233 (2.2V 66*3.5)



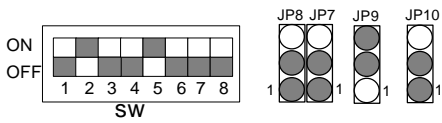
11. AMD-K6/266 (2.2V 66*4); AMD-K6-2/266 (2.2V 66*4)



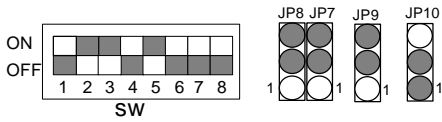
12. AMD-K6/300 (2.2V 66*4.5)



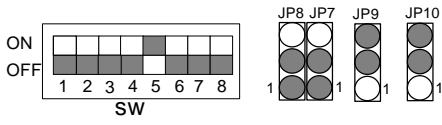
13. AMD-K6/300 (2.2V 100*3); AMD-K6-2/300 (2.2V 100*3)



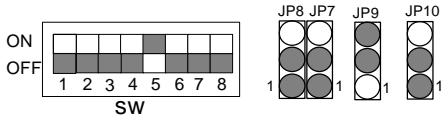
14. AMD-K6-2/333 (2.2V 66*5)



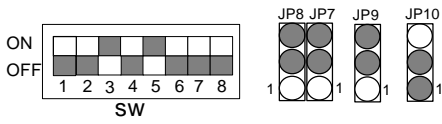
15. AMD-K6-2/333 (2.2V 95*3.5)



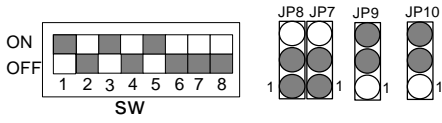
16. AMD-K6-2/350 (2.2V 100*3.5)



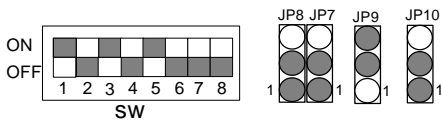
17. AMD-K6-2/366 (2.2V 66*5.5)



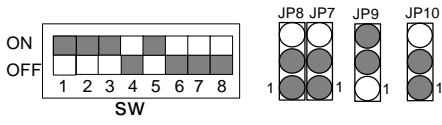
18. AMD-K6-2/380 (2.2V 95*4)



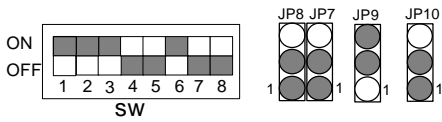
19. AMD-K6-2/400 (2.2V 100*4)



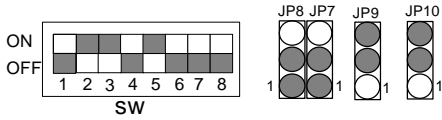
20. AMD-K6-2/450 (2.2V 100*4.5)



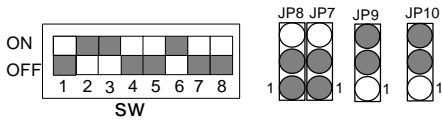
21. AMD-K6-2/450 (2.4V 100*4.5)



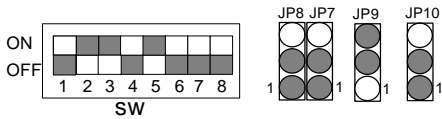
22. AMD-K6-2/475 (2.2V 95*5)



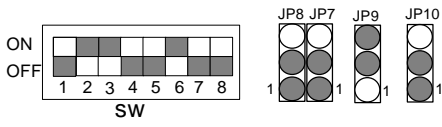
23. AMD-K6-2/475 (2.4V 95*5)



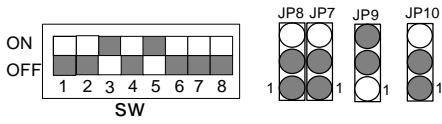
24. AMD-K6-2/500 (2.2V 100*5)



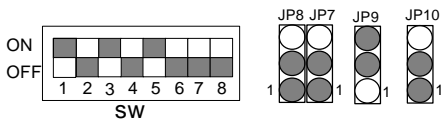
25. AMD-K6-2/500 (2.4V 100*5)



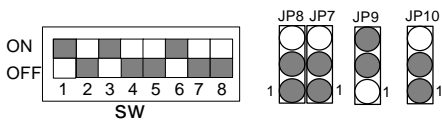
26. AMD-K6-2/550 (2.2V 100*5.5)



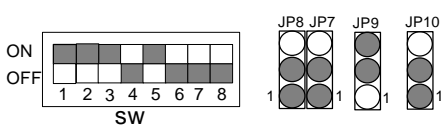
27. AMD-K6-III/400 (2.2V 100*4)



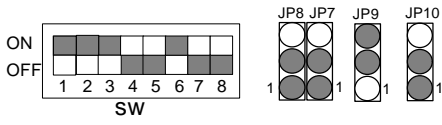
28. AMD-K6-III/400 (2.4V 100*4)



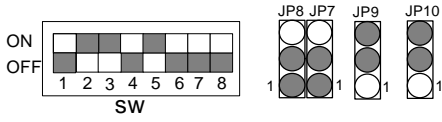
29. AMD-K6-III/450 (2.2V 100*4.5)



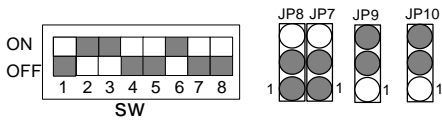
30. AMD-K6-III/450 (2.4V 100*4.5)



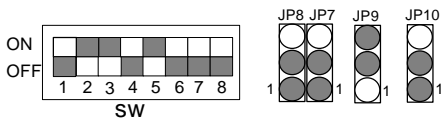
31. AMD-K6-III/475 (2.2V 95*5)



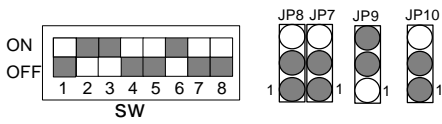
32. AMD-K6-III/475 (2.4V 95*5)



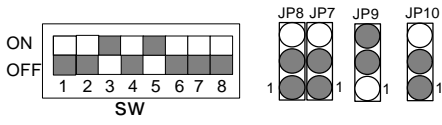
33. AMD-K6-III/500 (2.2V 100*5)



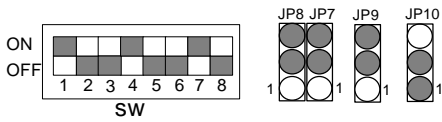
34. AMD-K6-III/500 (2.4V 100*5)



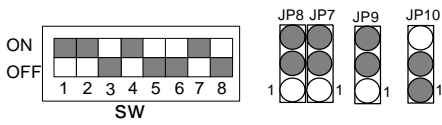
35. AMD-K6-III/550 (2.2V 100*5.5)



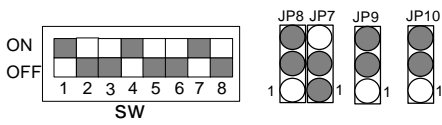
36. Cyrix / IBM 6x86MX-PR166 (2.9V 66*2)



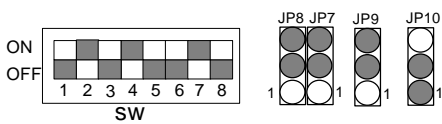
37. Cyrix / IBM 6x86MX-PR200 (2.9V 66*2.5)



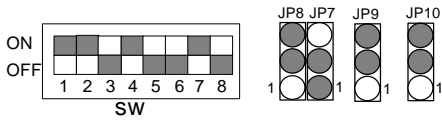
38. Cyrix / IBM 6x86MX-PR200 (2.9V 75*2)



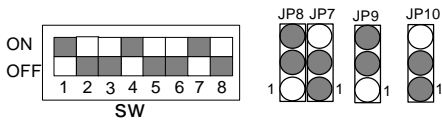
39. Cyrix / IBM 6x86MX-PR233 (2.9V 66*3)



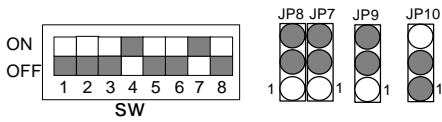
40. Cyrix / IBM 6x86MX-PR233 (2.9V 75*2.5)



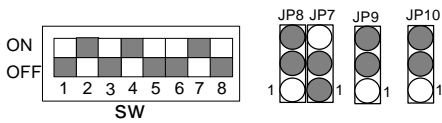
41. Cyrix / IBM 6x86MX-PR233 (2.9V 83*2)



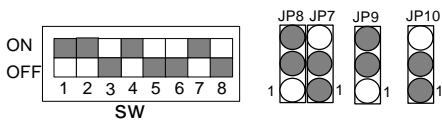
42. Cyrix / IBM 6x86MX-PR266 (2.9V 66*3.5)



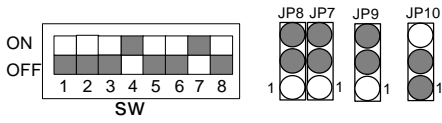
43. Cyrix / IBM 6x86MX-PR266 (2.9V 75*3)



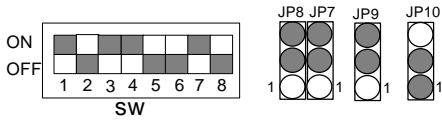
44. Cyrix / IBM 6x86MX-PR266 (2.9V 83*2.5)



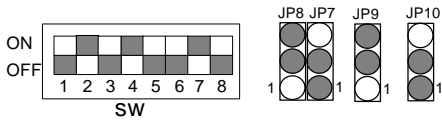
45. Cyrix M Φ Φ PR300 (2.9V 66*3.5)



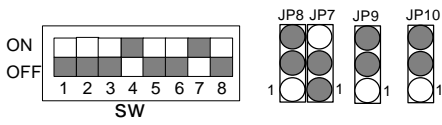
46. Cyrix M Φ Φ PR333 (2.9V 66*4)



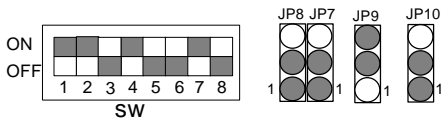
47. Cyrix M Φ Φ PR333 (2.9V 83*3)



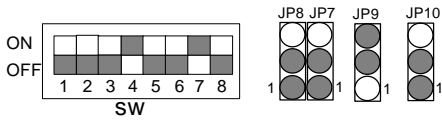
48. Cyrix M Φ Φ PR333 (2.9V 75*3.5)



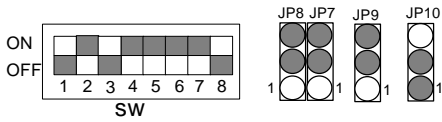
49. Cyrix M Φ Φ PR366 (2.9V 100*2.5)



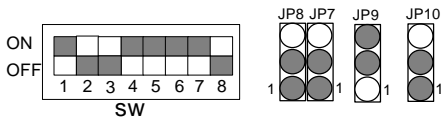
50. Cyrix M Φ PR400 (2.9V 100*3)



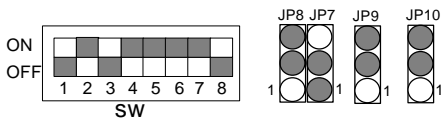
51. IDT Winchip 2-200 (3.5V 66*3)



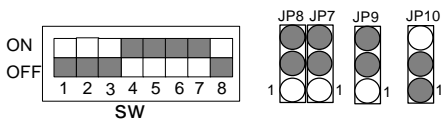
52. IDT Winchip 2-200 (3.5V 100*2)



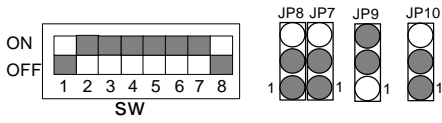
53. IDT Winchip 2-225 (3.5V 75*3)



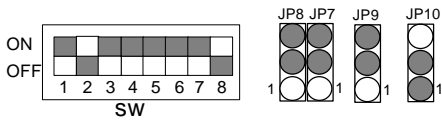
54. IDT Winchip 2-233 (3.5V 66*3.5)



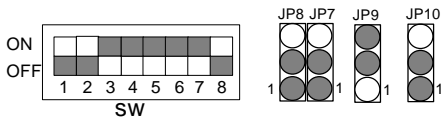
55. IDT Winchip 2-233 (3.5V 100*2.33)



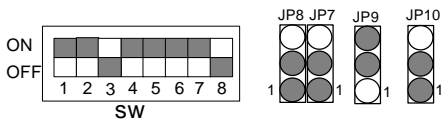
56. IDT Winchip 2-266 (3.5V 66*4)



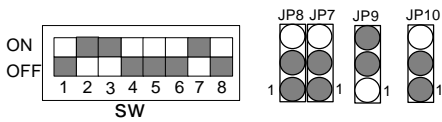
57. IDT Winchip 2-266 (3.5V 100*2.66)



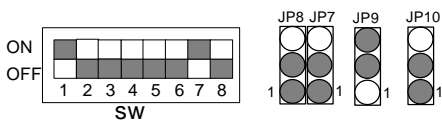
58. IDT Winchip 2-300 (3.5V 100*2.5)



59. IDT Winchip 3-266 (2.8V 100*2.33)

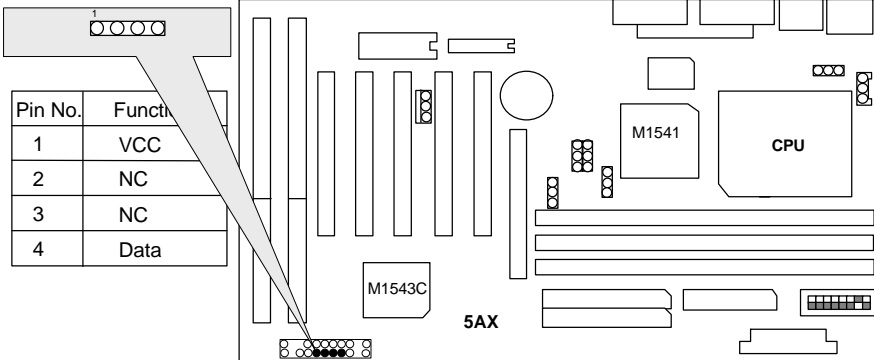


60. RISE MP6-266 (2.8V 100*2)

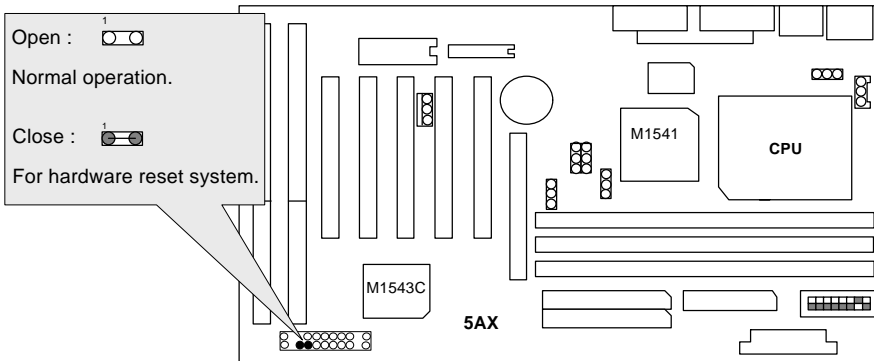


III. Quick Installation Guide of Jumper setting:

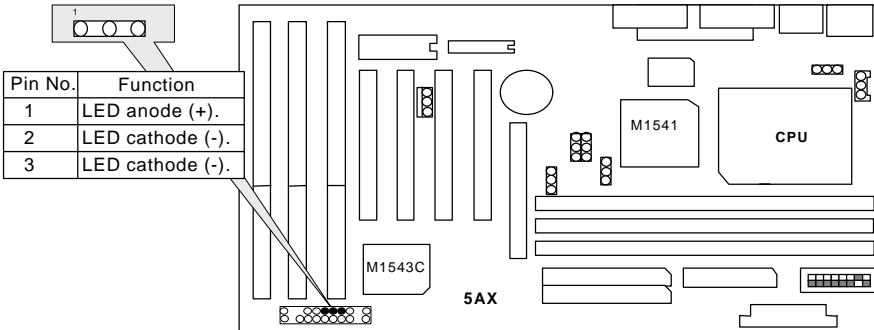
SPK : Speaker Connector



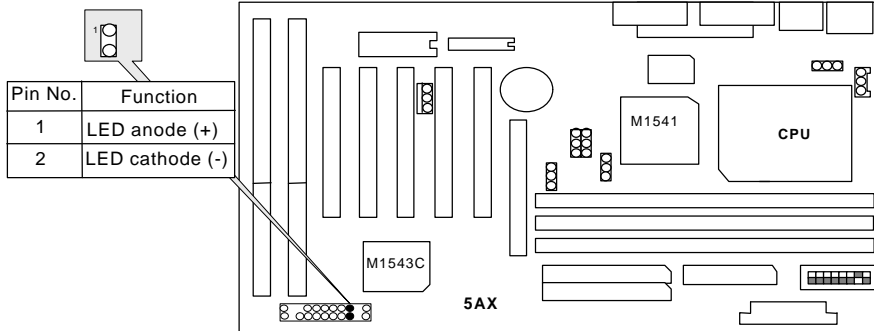
RST : Reset Switch



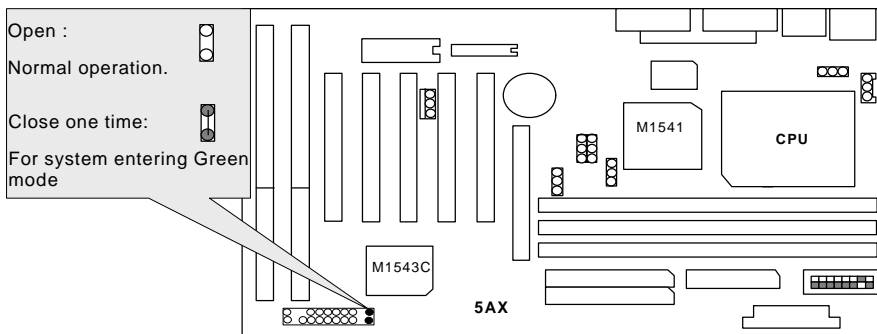
PWR LED : Power LED (As a 3 steps ACPI LED)



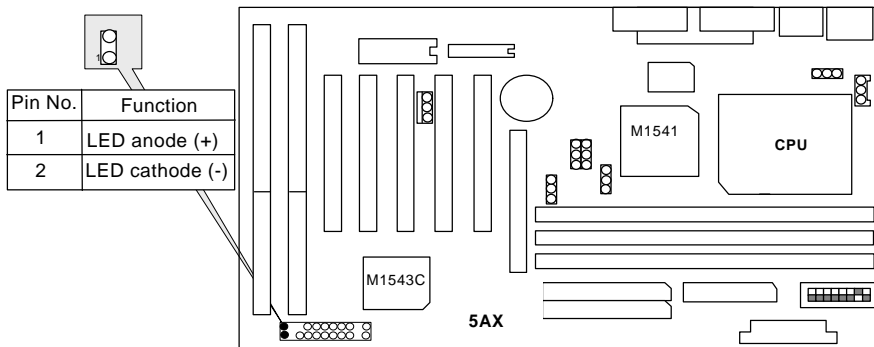
HD : IDE Hard Disk Active LED



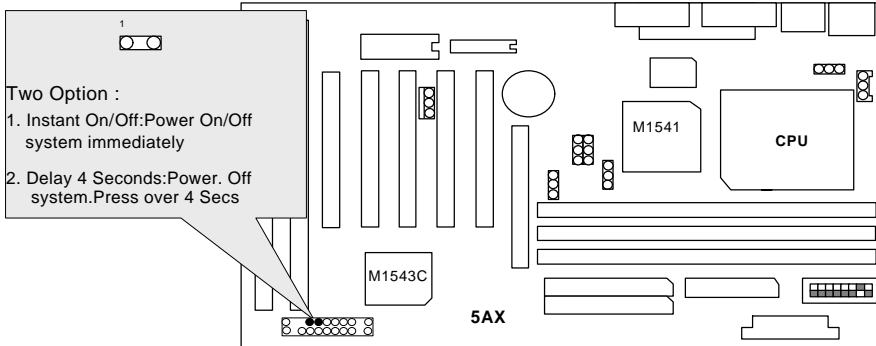
GN : Green Function Switch



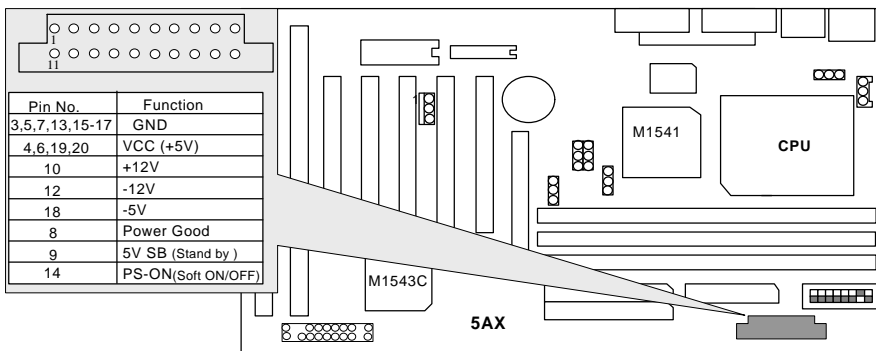
GD : Green LED



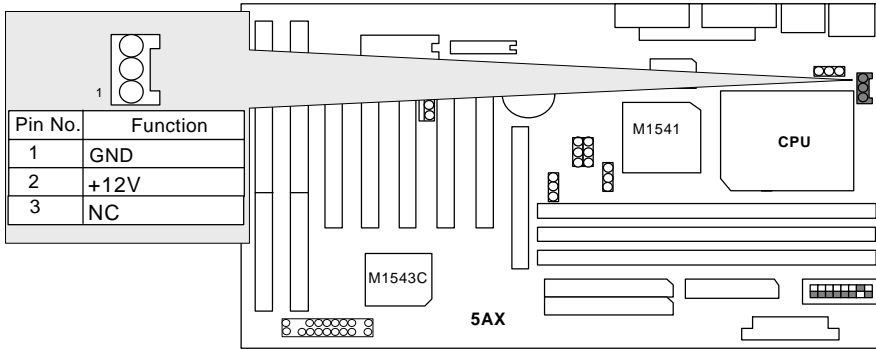
SOFT PWR : Power On/Off Switch



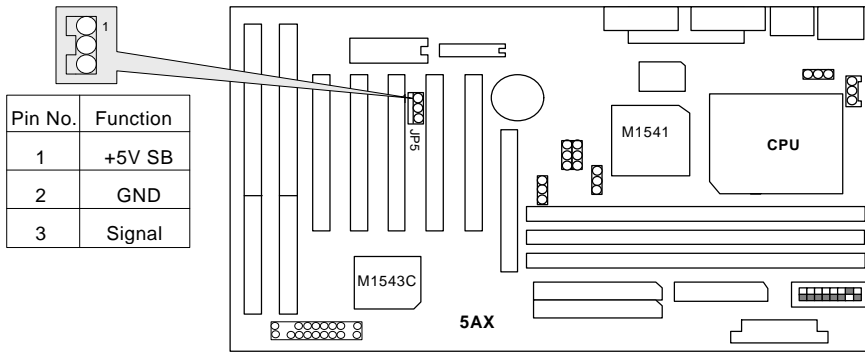
ATX Power Connector



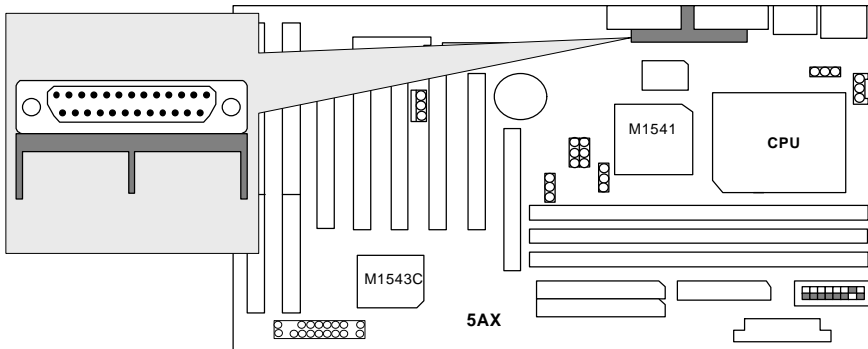
JP1 : CPU Cooling Fan Power Connector



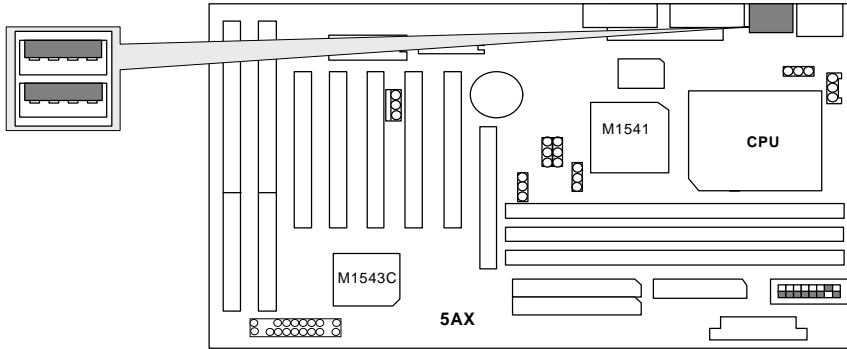
JP5: Wake On Lan



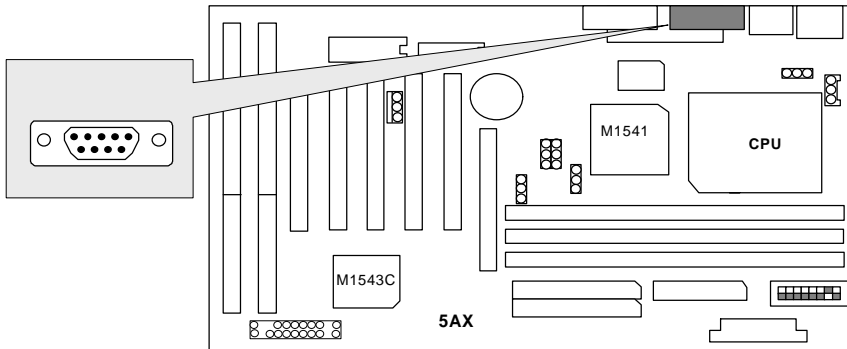
LPT : LPT PORT



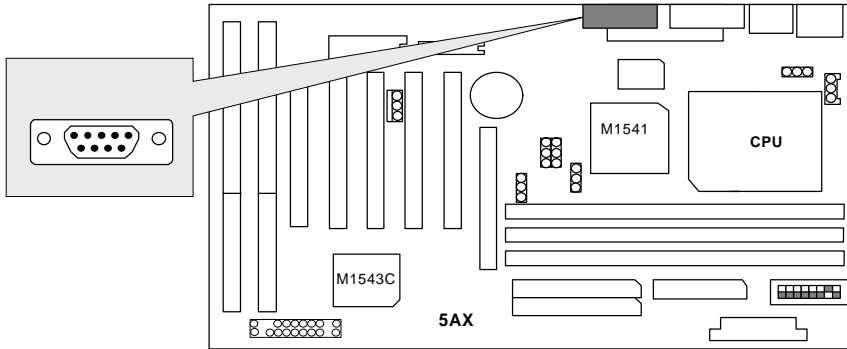
USB: USB Port



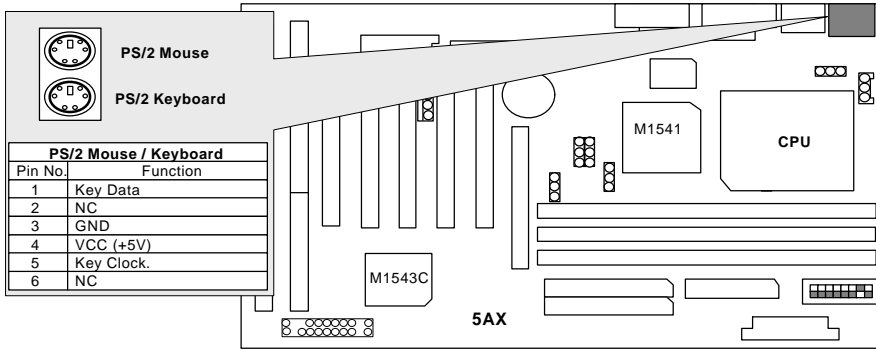
COM B : COM B PORT



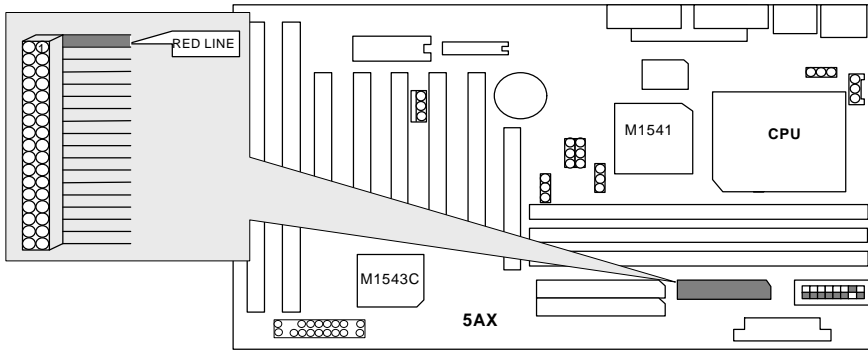
COM A : COM A PORT



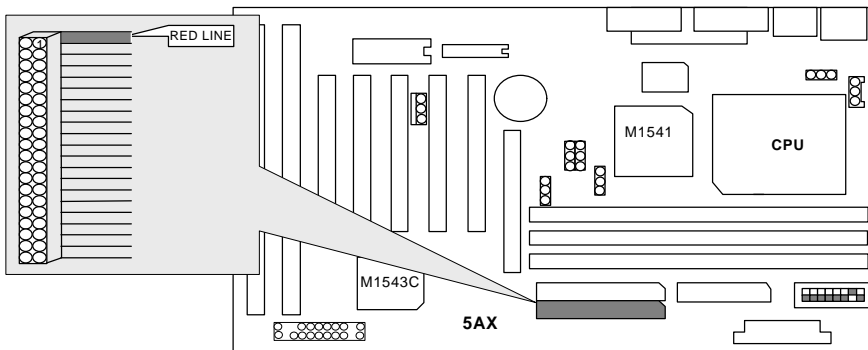
M.S. / K.B. : PS/2 Mouse / Keyboard Connector



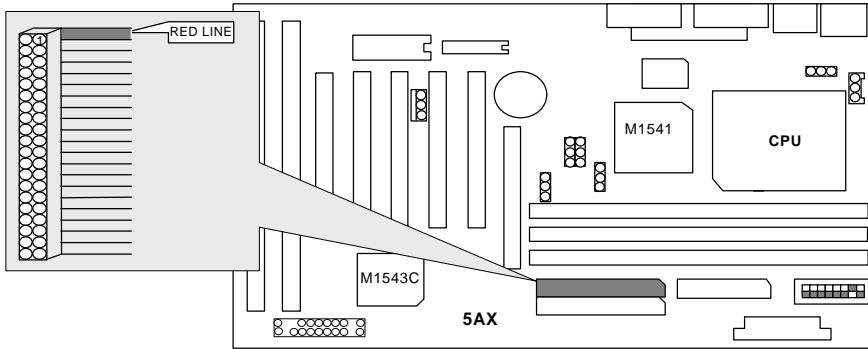
FLOPPY : FLOPPY PORT



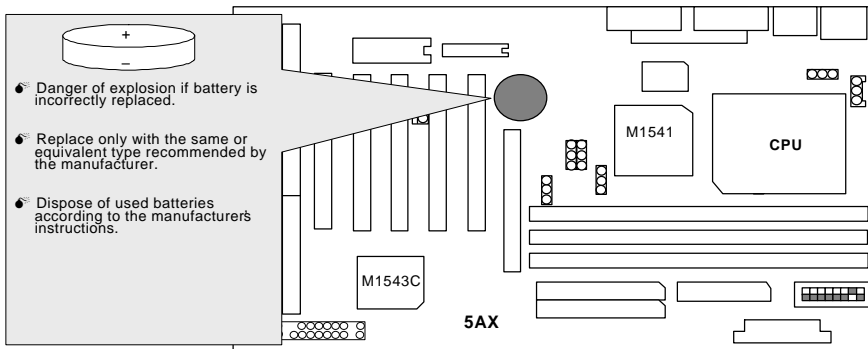
IDE1 : For Primary IDE port



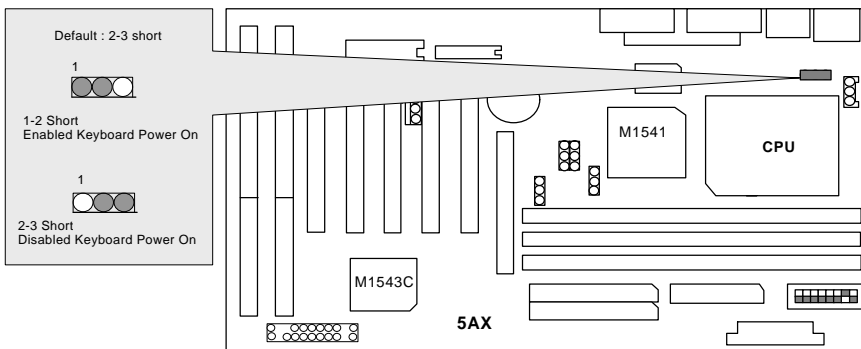
IDE2 : For Secondary IDE port



BT1 : For Battery



JP3 : Keyboard Power On/Off



III. Top Performance Test Setting:

Users have to modify the value for each item in chipset features as follow

```
ROM PCI/ISA BIOS (2A5KKG09)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

Auto Configuration      : Enabled
Host Read DRAM Command Mode : Bypass
AT Bus Clock           : CLK 2/4
DRAM Timing            : Fast
SDRAM CAS Latency      : 2
Pipelined Function     : Enabled
Graphics Aperture Size : 64 MB
DRAM Data Integrity Mode : Disabled
Memory Hole At 15-16M  : Disabled
ISA Line Buffer         : Enabled
Passive Release        : Enabled
Delay Transaction      : Disabled
Primary Frame Buffer    : 2 MB
UGA Frame Buffer        : Enabled
Data Merge             : Enabled
IO Recovery Period     : 1 us

Auto Detect DIMM/PCI Clk : Enabled
Spread Spectrum         : Disabled

ESC : Quit      ↑↓↓ : Select Item
F1  : Help      PU/PD/+/- : Modify
F5  : Old Values (Shift)F2 : Color
F6  : Load BIOS Defaults
F7  : Load Setup Defaults
```

for top performance setting.

- ** Each value of items as above depends on your hardware configuration : CPU , SDRAM , Cards , etc.
Please modify each value of items If your system does not work properly.

PERFORMANCE LIST

The following list of performance data is the testing results of some popular benchmark testing programs.

These data are just referred by users, and there is no responsibility for different testing data values gotten by users. (The different Hardware & Software configuration will result in different benchmark testing results.)

- CPU Pentium® Processor MMX-233 MHz , Cyrix 6x86MII-PR333 , AMD K6-2 400
- DRAM (128 x 1) MB SDRAM (LGS GM72N66841CT7J)
- CACHE SIZE 512 KB
- DISPLAY GA-600 (4MB SGRAM)
- STORAGE Onboard IDE (IBM DHEA-36481)
- O.S. Windows® NT 4.0
- DRIVER Display Driver at 1024 x 768 x 256 colors x 75Hz.
ALi Bus Master IDE Driver

Processor	Intel-MMX 233MHz (66x3.5)	AMD K6-2 400 (100x4)	Cyrix M-II PR333 (83x3)
Winbench98 CPU mark32	465	885	616
FPU Winmark	916	1300	573
Business Disk	1780	1880	1860
Hi-End Disk	4160	4470	4520
Business Graphics	107	168	154
Hi-End Graphics	111	173	172
Winstone98 Business	22.7	31.4	27.8
Hi-End	23.5	32.2	28.6