



# BASIC COMPUTER TRAINER

## MODEL - COMP100

This trainer provides training of hardware and software theory of a Computer with more than 100 Hands-on experiments.



### FEATURES

1. The different circuit boards of PC/AT Computer are exposed on a PCB of size 24" x20".
2. Section wise different colored screen printed circuit on the PCB for easy understanding of functions of different sections.
3. Explanation, Observation and adjustment of Jumpers and Switches setting are possible at a glance.
4. Troubleshooting and fault finding procedure explained in detail.
5. Artificial Fault creation facilities are provided by switches and by software commands.
6. About more than 75 faults can be demonstrated on this trainer.
7. Easy identification of different parts of Computer at a glance.
8. Easy measurement of voltages and Observation of Waveforms. The typical voltages and waveforms are provided.
9. An Exhaustive and skilled oriented comprehensive instructional manual complete with theory explaining hardware and software concepts having more than 100 practical is provided with this trainer.

### SPECIFICATIONS

#### (A) Computer System

1. CPU with fan : Intel Pentium IV 3.0 GHz
2. Mother Board : 400 MHZ FSB
3. Memory (RAM) : 512 MB DDRAM
4. Display Adaptor card : On Board AGP 8 MB
5. Hard Disk : 80 GB - Seagate
6. Floppy Disk Drive : 1.44 MB - Sony
7. Monitor : 15" Color SVGA
8. Key board : 104 Keys Keyboard - TVSE Gold
9. Mouse : Logitech Scroll Mouse with pad
10. SMPS : 200 Watts ATX Frontech
11. All parts are soldered on single pin TAGS on single PCB of size 24" x20" with complete circuit diagram Screen-printed in multi colour.

#### (B) Training Packages

1. Trainer PCB Board with fault creating facilities
2. Training Package with 100 Experiments  
(Software CDs, Manuals, Charts)

**Sigma Trainers and Kits**  
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**Dealer:-**

## EXPERIMENTS

### (0) Introduction:-

1. To open the cabinet of Computer
2. To observe external connections
3. To observe different cables and connectors.
4. To disassemble the computer.

### (1) HARD DISK:-

5. To install the Hard Disk
6. To make partition of Hard disk To observe Partition Information To delete partitions
7. To format Hard Disk
8. To connect two Hard disks in Master and Slave mode
9. To defrag Hard Disk
10. To free more space by FAT32, by compressing, by drive space, by removing unnecessary files
11. To remove Hard Disk faults by Scandisk, by Norton disk diagnosis (NDD)
12. To copy Hard Disk by Ghost, By Disk Copy, By Master/Slave
13. To carry out Hard Disk Jumper setting
14. To backup & restore Hard Disk
15. To recover lost data by Mirror, Image, Ghost, Lost clusters, Recycle bin, Undelete, unformat, Partition
16. To measure access time of Hard Disk .
17. To carry out Master Boot record of Hard Disk by Fdisk
18. To make Hard Disk bootable
19. To carry Head Parking of Hard Disk
20. To remove Virus from Hard Disk
21. To label Partition of Hard Disk
22. To make dual boot system
23. To maintain Hard Disk
24. To troubleshoot Hard Disk faults
25. To observe Hard disk cables
26. To test Hard disk

### (2) FLOPPY DRIVE:-

27. To install floppy drive.
28. To format floppy Disk. - 1.4, 1.2 MB
29. To make A & B Configuration of Floppy drives
30. To defrag floppy disk
31. To make more space on floppy disk
32. To test and & align floppy drive Head
33. To copy Floppy Disk
34. To make Emergency Disk / Boot disk / Rescue disk
35. To write protect floppy disk
36. To Clean floppy drive head
37. To test floppy drive

### (3) MONITOR:-

38. To change Monitor Resolution/ Dot pitch
39. To change Fonts of monitor display screen
40. To change appearance of monitor display screen
41. To adjust Height, Width, Position, Cushion, Trace of display screen
42. To adjust Brightness and Contrast
43. To set monitor Power off time
44. To apply different Themes on display screen
45. To operate Screen saver
46. To install monitor - Plug & Play
47. To increase monitor performance
48. To change display adaptor card (Video Card)
49. To observe 3D & Direct draw facility
50. To set active desktop page
51. To test and align monitor
52. To set Dos Colour Setting

53. To set Internal Controls of monitor
54. To install monitor

(4) DISPLAY CARD:-

55. How install display card
56. To configure the drivers
57. To change setting of IRQ / DMA/ MEMORY /PORT setting
58. To install /testing resolution / card
59. To make Configure Modes
60. To install Add Video Ram (VRAM)
61. To test display card

(5) CPU:-

62. To make Over Clocking
63. To install Cache Check Cache
64. To make the Check-Types, Speed, Socket, Manufacturer, Voltage
65. To use the See-Heat-sink, FAN, socket, Speed
66. To check Test-CPU speed / NPU speed & Measure
67. To Adjust CPU Speed to Bus Speed
68. To use the Wait state / Fetch cycle / Execute cycle / Instruction Set
69. To install CPU

(6) MEMORY:-

70. To installing the memory
71. To Memory Checking Type, Capacity, Speed
72. To Check & Change Virtual memory
73. To Set Swap memory
74. To make Map memory - used / unused / by
75. To Convert-EMS - XMS
76. To Carry out & setting DMA
77. To Optimize memory by Memory Management
78. To Test Memory
79. To Protected Mode & Virtual Mode
80. To Carry out ROM shadowing
81. To Create-Cache & Use it
82. To Create & Use RAM DISK

(7) MOTHERBOARD:-

83. To Install / Change / Upgrade the mother board.
84. To Check the Chip-Set type
85. To Check the CPU and Socket type
86. To Check memory and Socket type
87. To Check connectors and Sockets
  - IDE1, IDE2, FDC
  - KB, PS/2 Mouse, Com1, Com2, LPT1, Game Port
  - RPS Sockets, ATX socket
  - PCI Bus, AGP, AMR, ISA, USB
  - BIOS, CMOS, Battery,
  - Control Panel - LS, LED, Reset, Key Lock, IRDA
  - Size - AT/ATX
  - Manufacturer / Drivers
  - Fan connectors
  - WOL
  - Headers - Audio, VGA, CD, Modem, LAN

- 88. To Test & measure
  - BUS speed - system
  - Slots - PCI, ISA
  - Ports - Com1, Com2, LPT, Game
  - BIOS -
  - Int. Controller
  - DMA. Controller
  - KB Controller
  - Clock
  - Timer
  - C-MOS RAM
  - LS
  - Battery
- 89. To Test On Board - Test / Check
  - Audio
  - Video
  - Modem
  - LAN
- 90. To Hardware Monitor
- 91. To Set Motherboard jumpers
- 92. To Voltage & Waveforms
- 93. To Install Drivers

(8) KEY BOARD:-

- 94. To Test / Check the keyboard.
- 95. To Measure clock & data signal voltage / Wave forms of keyboard.
- 96. To Use Special Keys of keyboard.
- 97. To DosKey of keyboard
- 98. To Define Key-Macros
- 99. To Print screen of keyboard
- 100. To keyboard Typematic Rate
- 101. To use the keyboard Num Lock
- 102. How Install the keyboard
- 103. To DIN to PS2 Converter

(9) MOUSE:-

- 104. To Configure Speed / Shape / tail of mouse.
- 105. To Test/check in Modem in Dos the mouse.
- 106. To Clean the mouse
- 107. How Install the Serial / PS2 drivers of mouse
- 108. To Set Com1 & Com2 of mouse.
- 109. To Use PS2 to Com1 Converter mouse
- 110. To Use Com1 to Com2 Converter mouse

(10) SMPS/Cabinet:-

- 111. To Measure Voltages of Switch mode power supply (SMPS).
- 112. To Install the SMPS.
- 113. To Test/check the SMPS.
- 114. To Observe Connectors & Wires colour of SMPS.
- 115. Types of cabinet