LAPTOP CHIP LEVEL TRAINING

In This Foundation Module, You Will Learn:

- Adaptor and battery repairing concepts.
- Laptop motherboard repairing concepts LCD TFT/ LED CCFL, LCD.

Before attending this class: Basics of SMD Electronics, assembling and reassembling should be clear.

• L-2 ADAPTER, BATTERY , LCD, INVERTER, ETC REPAIRING CONCEPT

1. ADAPTER REPAIRING CONCEPTS :- Opening adapter, Testing Point, Troubleshooting ,
2. BATTERY REPAIRING CONCEPTS :- Working Idea, open a Battery, Check Cells, , Battery IC Repairing Concepts of Battery
3. LCD /TFT/LED CCFL / LCD TUBE CONCEPTS :- Pin out Details, Common Problems, Different Size of LCD, Repairing Concept of LCD, CCFL Testing, Replacement concepts of CCFL
4. INVERTER REPAIRING CONCEPTS :- Pin Detail, Vcc, contrast, on /OFF, Gnd, Brightness controller MOSFET, Testing Inverter Troubleshooting of Inverter
5. RAM :- Pin Details, SPD Firmware update concepts, Common faults of RAM Main signals and voltage of RAM
6. KEYBOARD/ TOUCHPAD :- Basic problems & solution of Keyboard and Touch Pad, Working function of Touchpad switch
7. HARD DISK :- Types of Hard Disks ,Converter used for Hard Disks , Common fault in Hard Disk section (motherboard section), Pin details of Hard Disk

• MODULE L3 : LAPTOP MOTHERBOARD CHIP LEVEL TRAINING:

In This Foundation Module, You Will Learn:

- Block diagram of laptop.
- Adaptor and battery repairing concepts.
- Laptop motherboard repairing concepts LCD TFT/ LED CCFL, LCD.

Before attending this class: Basics of SMD Electronics, assembling and reassembling should be clear.

L 3.1 LAPTOP WORKING DETAIL

CHP 1. INTRODUCTION TO LAPTOP BOARD:

1.a. Identify Components On Differenent Laptop Motherboard
1.b. Basic Differences Between Laptop & Desktop
1.c. Mechanical Difference Power, Reset, Clock
1.d. A List Of Tools Required For Repairing Laptops

CHP 2. BLOCK DIAGRAM OF BOARD , CHIP IDENTIFY:

a. Types Of Board Platform Intel Amd
b. Block Diagram Of Laptop Board Connection
c. Identify Laptop Boards Connection ,
d. Laptop Chips Detail And Types
e. Identify Ic Pin Detail , Datasheet, Pin Count Process

CHP 3. BASIC WORKING DETAIL OF BOARDS:

a. Understanding Hand Shaking Signals , Binnary Systesm, On/Off
b. Different Power To Different Chips, How Voltage Divided
c. Pci Reset, Clock Frequency Bios Software
d. Stage Of Motherboared, Mechanica, Standby, Shut Down, When Required

CHP 4. MOSFETS AND ITS USED, SWITCHING, AND REGULATOR:

a. Mosfets Types, Identify N Channel P Channel, Testing Identify
b. Swithcing Used, Regulator Used,
c. Step Down Process ,Regulator Chip, , Switching Used Of Mosfet,

CHP 5. POWER ON STAGE PRIMARY, SECOND, VRM:

a. Understanding Power On Sequenc Of Board

L3.2 SCHEMATIC DIAGRAM TRACING

CHP 6. LAPTOP SCHEMATIC DIAGRAM, TYPES ODM:

a. Types Of Schematic Diagram With Manufacture
b. Identify Components On Schematic Diagram
c. List Of Schematic Diagram With Models No
d. Understanding Switching Section With Schematic Diagram

CHP 7. POWER SUPPLY CHIPS DETAIL AND UNDERSTAND SIGNALS:

a. Battery Charging & Vin :- Pinout Of Battery Connection, Battery Chip, Important Signals Of Battery Chip, Tracing Signals Of Battery
b. Always Power On:-Pcu, Main, S5 Power, Aux, Etc.
c. Primary Voltage :- 5v, 3v Sus, Main, So,S3, Power
d. Secondary Voltage :- 2.5, 1.8v Sus Main, So, S3, S4 Power
e. Others Power Chip 1.2, 1.4, 1.5v, Sus, Main , So S3, S4 Power
f. Cpu Core Vrm Voltage Regulator Module:- Main Signals Of Vrm Chip, Function Of Vrm Chip, Measure Vrm Input And Output Signals, Vron, Pgood, Etc.

CHP 8. CLOCK GENERATOR, CPU SECTION:

a. Understanding Whole Block Diagram Through Schematic Diagram
b. Clock Generator Chip:- Clock Generator Chip Oscillating Frequency To Different Chip, Main Signals Of Clock Chips
c. Cpu Section (Intel, Amd) What Is the Importance Of Signals In Cpu? Understanding Basic Signals Of Cpu, Cpu Different Power Vcccore, Connection Of Cpu With Other Chips

CHP 9. NORTH BRIDGE AND GRAPHIC CHIP CONNECTION:

a. NORTH BRIDGE (MCH) Memory Control Hub:- Understanding Basic Signals Of North Bridge, Northbridge Different Power Supply, Connection With Different Chips
b. GRAPHICS CHIP:- Why Graphics Chip Is Used, What Problem Is Created By Graphics Chip, Main Types Of Graphics Chips, Nvdia, ATI, Etc.
c. CPU TEMPERATURE CONTROL :- Function Of Temperature Related To CPU And Controls
d. RAM MEMORY POWER SUPPLY:- Important Signals Of RAM, Understanding Basic Signals Of Ram, Ram Different Power Supply, Connection With North Bridge
e. LCD & BACK LIGHT CONTROL: - Functions Associated With LCD Backlight Controls, Inverter, Etc.
f. DISPLAY CONNECTOR
g. DVOC / TVOUTPUT

CHP 10. SOUTH BRIDGE, LAN , AUDIO, HDD, CDD, CARD READER:

a. SOUTH BRIDGE(ICH);- What is the basic function of south bridge, southbridge different power supply, connection with different chips
b. LAN NETWORK CHIP:- Function of network chip, connections of network chip
c. AUDIO SOUND CHIP:- Function of sound audio chip, connections of sound chips
d. BIOS Section :- AWARD, PHONIX, AMIBIOS, COMPAQ, IBM :- Types of BIOS chip , main signals of BIOS chip, connection with i/o & Southbridge signals, CMOS battery power supply to BIOS chip
e. Rtc section
f. Hdd sata pata
g. USB ESATA CONNECTION
h. PCI CARD
i. WIFI MODEM CONNCTION

Chp 11. I/O CONTROLLER KEYBOARD, TOUCHPAD, CAMERA, POWER CONTROLLER:

a. I/O CONTROLLER (Power Chip Control Section) :- Main Signals Of I/O Chip, I/O Chip Contain Power Control Chip In Some Models, Connection And Function Of I/O Chips
b. KEYBOARD, Connection Detail ,
c. TOUCH PAD, Connection Detail Main Signals
d. POWER CONTROLLER CHIP , Power Main Signals Detail
e. CAMERA ,
f. MAGNET SENSOR

CHP 12. PCH (PLATFORM CONTROLLER HUB) NORTH+ SOUTH:

a. Pch Board Function Types
b. Difference In Connection

CHP 13. TRACING BOARD WITH SCHEMATIC SIGNALS:

a. CPU,
b. North , Ram, Display
c. South Audio, Lan, Connector,
d. I/O Keyboard, Touchpad, Etc

CHP 14. CHARGING AND PRIMARY VOLTAGE:

a. Charging , VIN, &Main PCU/ AUX / S5 Voltage Signals (Always On Voltage)
b. Primary Voltage Output Signals (MAIN SUS (5v,3.3v) S0/ S3)

CHP 15. SECONDARY VOLTAGE OUTPUT SIGNALS (SUS, MAIN (2.5V,1.5V) S0/ S3):

OTHER VOLTAGE

CHP 16. VRM SECTION & PCI RESET SIGNALS:

CHP 17. TRACING OF DIFFERENT LAPTOP BOARD POWER STAGES:

a. Understand Power On Different Signals Concept Of HP LAPTOP Motherboard
b. Understand Power On Different Signals concept Of Dell Laptop Motherboard
c. Understand Power On Different Signals Concept Of IBM Laptop Motherboard

L 3.3 FAULT FINDING STEPS

CHP 18. HOW TO USE CROBASIC CONCEPTS, TESTING WITH CRO& MULTIMETER(STEPWISE):

a. Understanding CRO , Used,
b. Testing , Frequency , Vrm Power, Signals

CHP 19. TESTING TOOLS , DEBUG CARD, SLOT TESTER:

a. DEBUG CARD, Error Codes, Identify Different Problems
b. Slot Tester :- Cpu, Ram

CHP 20. BIOS UPDATE, RESET:

a. Bios Update Process,
b. Bios Password Concept

CHP 21. WASHING, CLEANING, DRYING & DRY SOLDER PROBLEM SOLUTION OF MOTHERBOARD:

a. Washing & Drying Steps Of Board
b. Dry Solder Problems To Solve

CHP 22. TESTING LAPTOP POWER CONSUMPTION THRU POWER SUPPLY UNIT:

CHP 25. FLOW CHARTS FOR FAULT FINDING STEPS:

CHP 23. FAULT FINDING LAPTOP POWER SECTION:

P1 Dead laptop tracing step,

P2 Adapter power off when connect to laptop

P3 laptop charging led not on

P4 laptop not power on by pressing on off switch

P5 laptop power led on and closed in 2/3 sec

P6 laptop power on and off in 30 seconds

P7 laptop power led on but no display

P8 laptop not power on by adapter but power on by battery

P9 laptop not power on by battery , but on by adapter

P10 rtc, cmos battery power section

P11 laptop some time on , some time not on

P12 laptop protection circuit

P13 laptop VIN/ PWRSRC not generate

P14 always power on section troubleshooting

P15 Charging section troubleshooting

P16 Primary section troubleshooting

P17 Secondary section troubleshooting

P18 Laptop VRM section troubleshooting

P19 laptop other power on troubleshoot

P20 Laptop over heated

CHP 24. FAULT FINDING LAPTOP CONNECTION:

C1 Laptop CPU troubleshooting

C2 Laptop clock troubleshooting

C3 Laptop north bridge/ gmch troubleshooting

C4 Laptop RAM troubleshooting

C5 Laptop LCD troubleshooting

C6 Laptop VGA connection troubleshooting

C7 Laptop HDMI troubleshooting

C8 Laptop south bridge troubleshooting

C9 Laptop ieee 1394 troubleshooting

C10 Laptop audio troubleshooting

C11 Laptop Lan troubleshooting

C12 Laptop sata/ pata troubleshooting

C13 Laptop odd/ cd DVD connection troubleshooting

C14 Laptop USB troubleshooting

C15 Laptop Esata troubleshooting

C16 Laptop PCMCIA troubleshooting

C17 Laptop I/O chip troubleshooting

C18 Laptop touchpad troubleshooting

C19 Laptop keyboard troubleshooting

C20 Laptop bios troubleshooting

C21 Laptop bios password troubleshooting

C22 Laptop debug card post code errors

C23 Laptop camera not work

C24 Laptop modem troubleshooting

C25 Laptop card reader troubleshooting

C26 laptop wi fi troubleshooting

CHP 26. DISCUSSION STUDENT PROBLEMS AND SOLUTION:

L 3.4 BGA CHIP REPLACEMENT AND REBOLLING

CHP 27. REMOVING AND INSERTING DIFFERENT CHIPS PRACTICE (VIDEO & STEP):

a. Instrument Demo And How To Used
b. Removing Process Of Chip

Chp 28. USE OF BGA MACHINE, TEMPERATURE SETTING:

Chp 29. BGA REBOLL , REWORK PRACTICE:

Chp 30. DEMO FOR OTHER PRODUCT: