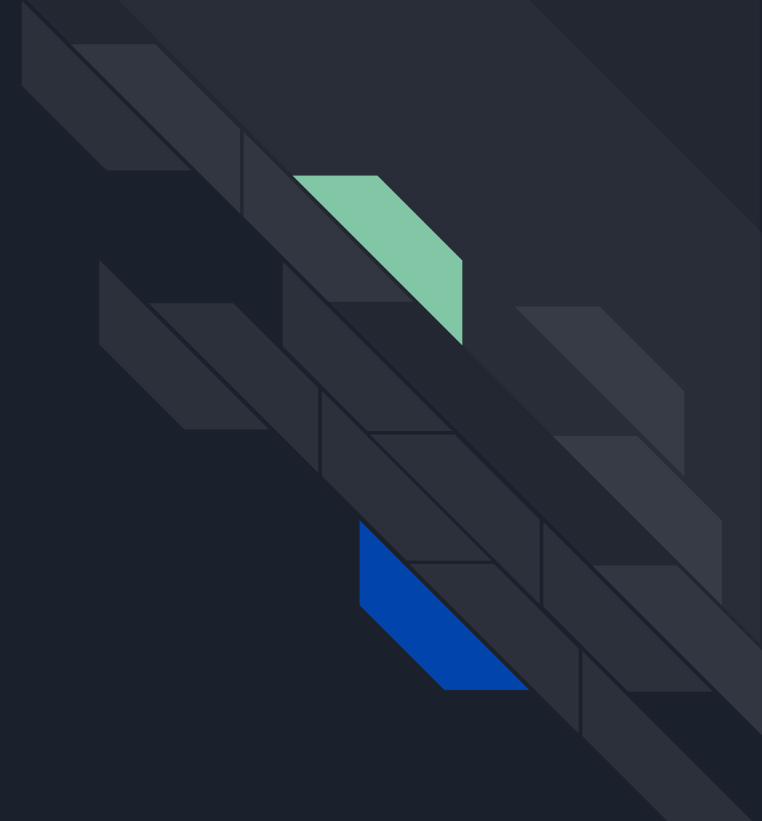


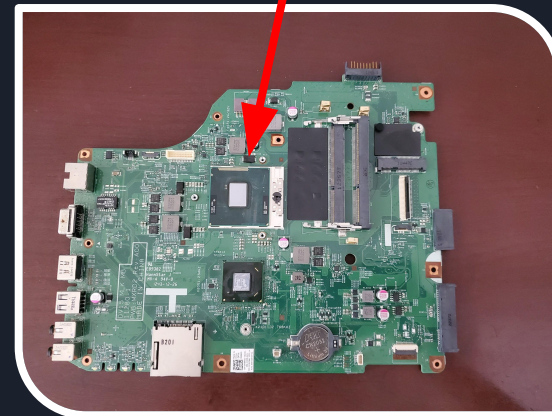
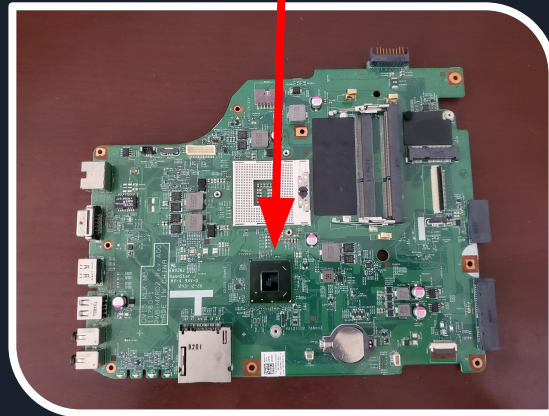
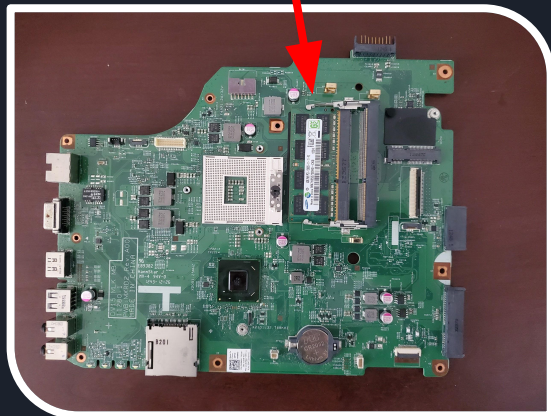
Electronics Online Challenge



Laptop: DELL Inspiron 3520



We, team 8995M of Metea Valley High School have decided to dissect a laptop due to our curiosity about the differences between the internals of a desktop & a laptop. The laptop used was the “DELL Inspiron 3520”. During our journey, the first component that we encountered was the motherboard. A motherboard is a board printed with copper embedded in fiberglass. This allows for components to communicate directly to each other via the copper channels (circuits (ICs) Integrated Circuits). Some integral parts on the motherboard are the CPU, GPU, RAM, and Hard drive. 2nd, the CPU AKA Central Processing Unit, is essentially the left side of the brain. Things like arithmetic, logic, controlling, and input/output (I/O) operations specified by the instructions in a program are computed by the chip. CPUs have three main attributes, the # of cores (processors of the chip), threads (virtual cores created by digitally splitting cores in half), and clock speeds (speed of each core) that judge how fast the chip is. The CPU found in our computer was an Intel Core i3 3rd gen, which has two cores and four threads and clocked at 2.3 GHz. 3rd, we have the GPU or graphics processing unit, this is the right side of the brain. GPUs have more cores and DRAM that allow for higher levels of computation as things like gaming and rendering requires a lot of computation to be done in the background. 4th, we have the RAM AKA Random Access Memory, which is a really fast source of memory that is used by the CPU. RAM is comprised of DRAM (Dynamic-Random Access Memory) modules that are like the cores of a CPU. Data like commonly visited sites & games are stored here so that when you access that specific data gain, you can access it quicker, rather than reloading it every time. This is why if you have lower amounts of RAM in your system it will generally be slower. Finally, we have the Hard drive. There are two main kinds of storage. SSD (Solid-state drive) or HDD (Hard disk drive). HDDs function via a "head" which moves over a magnetic platter, writing 0's and 1's as tiny areas of magnetic North or South on the platter. To read the data back, the head goes to the same spot, notices the North and South spots flying by, and so deduces the stored 0's and 1's. An SSD functions via electrons being trapped in microscopic cells that can equate to data. Now to be clear, there are numerous parts of a computer that were not covered in this report, however, the following slides showcase some of the parts we found when disassembling our computer. No TI parts were found within this system. Overall, we learned about how computer parts communicate to each other via ICs and the complex internals that govern our everyday systems, and we hope you learned from this just as much as we have.



RAM

Manufacturer - SAMSUNG

Part number - M471B5273DH0- CKO

Specification - 4GB (2R x 8)

GPU - HM75 Express

Manufacturer - Intel

Part number - SLJ8F

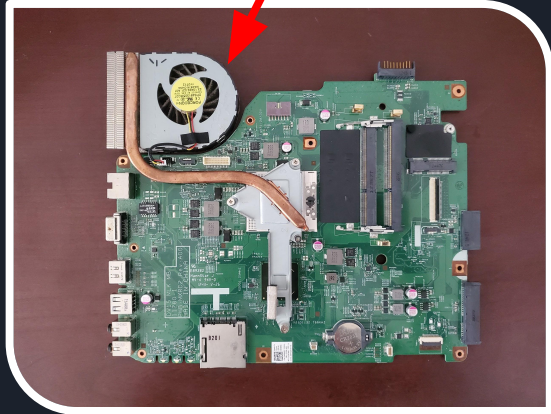
Specification - TDP 4.1 W

CPU - i3-2350M

Manufacturer - Intel

Part number - FF8062700995906

Specification - 2 cores / 4 threads



Cooler

Manufacturer - Forcecon

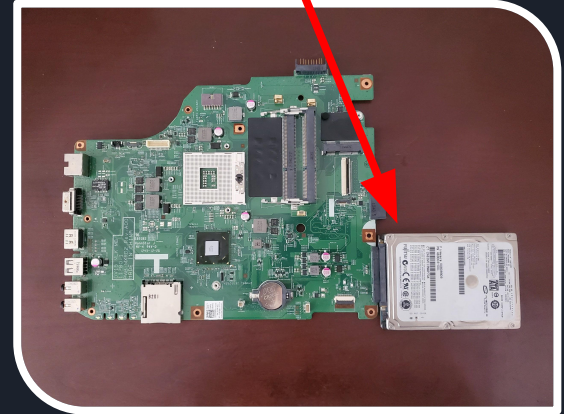
Part number - DFS481305MCOT



Motherboard

Manufacturer - HannStar

Part number - CN-0W8N9D

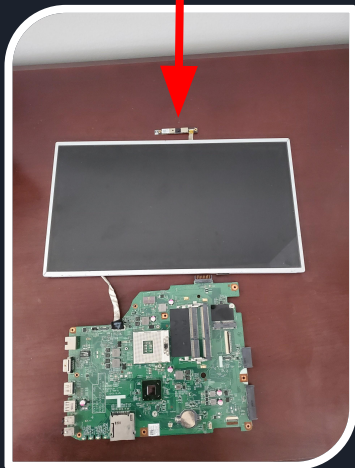


Hard Drive - SATA 2.5-inch Drive

Manufacturer - FUJITSU

Part number - CA07018-B31800C1

Specification - 320GB 5400RPM



Camera

Part number - CK7794V-0

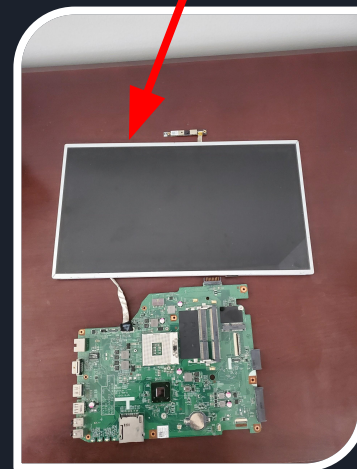


Battery

Manufacturer - DELL

Part number - J1KND

Specification - 4080mAh

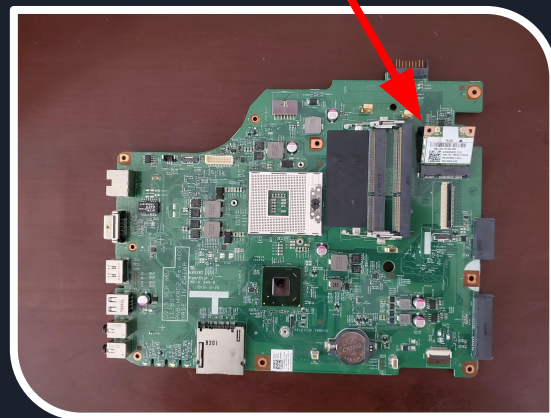
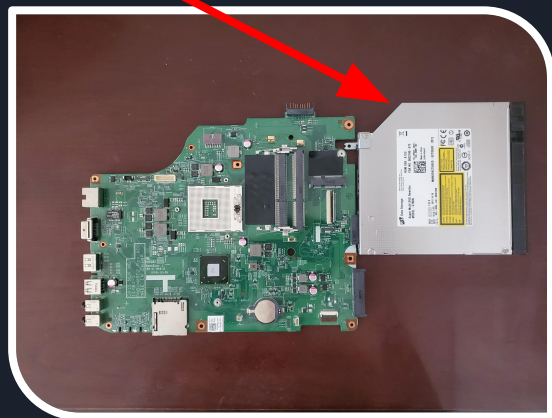


Display

Manufacturer - LG

Part number - LP156WH4

Specification - 15.6" HD



Optical Drive



Sites

[SR0DN \(Intel Core i3-2350M\) \(cpu-world.com\)](#)

[Mobile Intel® HM75 Express Chipset Product Specifications](#)

[Cache 2.5-inch Internal Hard Disk Drive \(harddiskdirect.com\)](#)

[220 uF 6.3 VDC Aluminum Electrolytic Capacitors – Mouser](#)

[CA07018-B31800C1 - Fujitsu Mobile 320GB 5400RPM SATA 3GB/s 8MB](#)

[NS681677 Electronic Distributor | NS681677 at Y-IC.com \(y-ic.com\)](#)

[NPCE885PA0DX - NUVOTON - Memory - Kynix Semiconductor](#)

[220 uF 6.3 VDC Aluminum Electrolytic Capacitors – Mouser](#)