Motherboards

What is it?

- -main board
- -everything connects to it
- -sometimes called a mobo

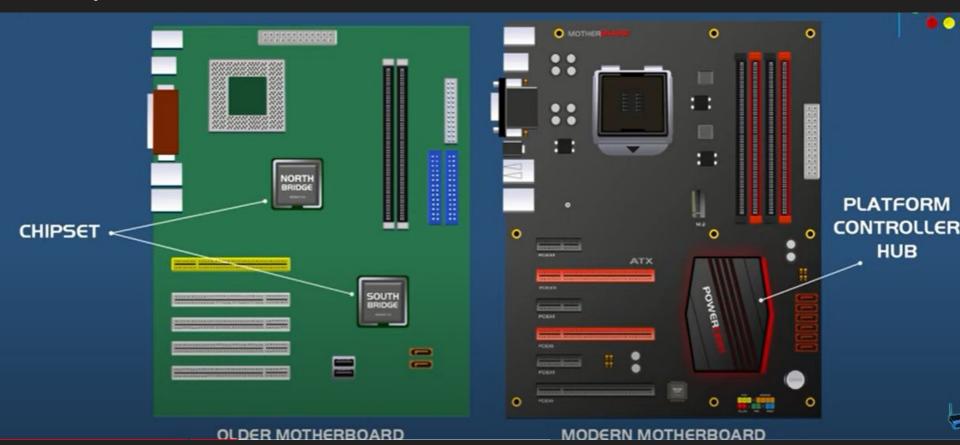




Common Features



Chipset Architectures



Old Chipset

-NorthBridge-located near _cpu__

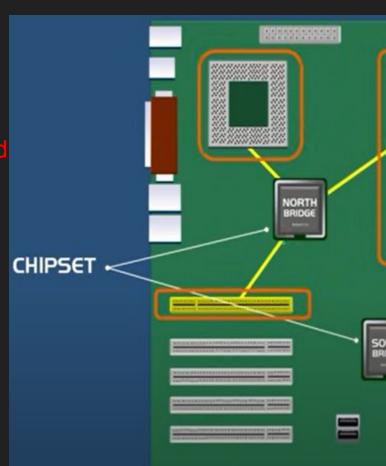
-interface between ____cpu pci express slots and ram

-SouthBridge-interface for older PCI

Standard slots, USB, SATA ports etc.

-data was sent from South to North and

exchanged between CPU and RAM



Platform Controller Hub

- -replaced old North-South Bridge architecture
- -most modern computer are designed so that the CPU performs most of the old northbridge chip duties
- -southbridge chipset responsibilities taken over entirely by the PCH

IO Interfaces



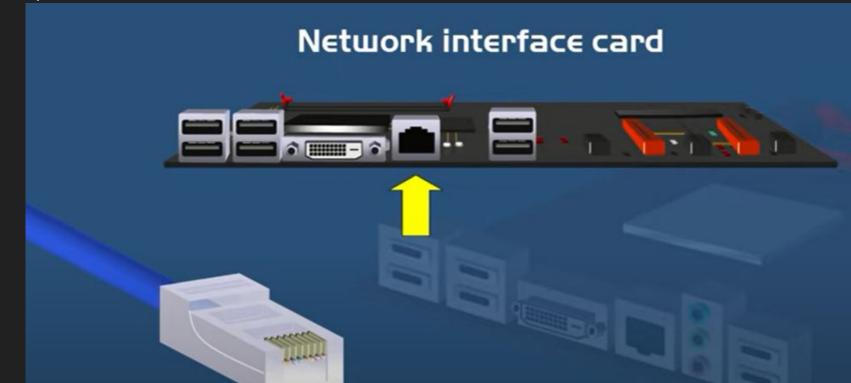
Integrated Video

- -video built into motherboard
- -most common older port-__vga__ or __dvi__
- -modern video ports-__hdmi___, ____display port__
- -on board video -__weak___
- -add add graphics or video card for more power



Integrated Ethernet

-ethernet port connects to RJ-45 connector on ethernet cable



Integrated Audio



Form Factors

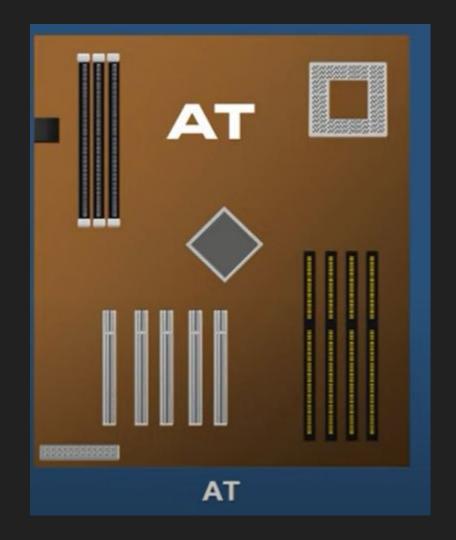
- -different shapes and sizes of MBs
- -most common atx
- -Advanced Technology eXtended
- -created in 1995
- -12"x9.6"
- -mounting holes in specific locations



ATX

AT

- -created in the 1980s
- -12x13.8"
- -no longer used



MicroATX

- -smaller than ATX
- -9.6"x9.6"
- -cheaper than ATX
- -used for compact PC
- -use less power
- -have less features



Questions and Exercises

1. Do some research and list the differences between the microATX and miniATX form factors i.e. when did it come out, why was it designed, what are its dimensions, typical number of expansion and memory slots?

MicroATX and Mini-ITX are compact motherboard form factors designed for smaller PC builds, with microATX (1997) measuring **9.6" x 9.6"** and Mini-ITX (2001) at **6.7" x 6.7"**. MicroATX supports up to **four expansion slots** and **four RAM slots**, while microATX balances size and expandability, Mini-ITX prioritizes space-saving and energy efficiency, making it popular for HTPCs and small builds.

2. Explain the BTX form factor motherboard.

BTX (Balance technology X) motherboard makes computer better at cooling (most popular motherboard)

3. Explain the NTX form factor MB.

The NTX form factor is a compact motherboard design optimized for low-power and embedded systems, typically used in specialized applications like industrial computing and thin clients

4. Go to amazon and find and list links to all the different form factor motherboards (if you can't find one at amazon then scan the net for other locations.

https://www.amazon.cg.ac/SROck-970M-PRO3_mATX-SATA-SUBS-9-0/do-B00T0R0-070T0R/fires-1_5*Crids-208/KOLXH8FV/0X86/bit NSO/SEFMIA/508/FIND/ASSPS-0 NAMSmikhmom/MRASCAN/hou/sheeb,PRIRD/GROXSLPL-(TRun-pox/MMShor/Yisc-Qibr-s-Nhovina/30030x2/75Vx838n4_LEbv.00MUMM-HG3Miy6/h7id_MSN/0mB0F6M75_MSN/0mB0F6M75_MSN/0mB0F6M75_WSN/0mB0F6M75

5. Include a list of links to HDMI, Display Port, DVI and VGA cables.

https://www.amszon.cs/indivcb.Goldscort/DT_ISSiato/space/cfc.11 | sacriate-2WIETINSDEV/Space/cfc.21 | sacriate-2WIETINSDEV/Space/cfc.23 |

1. 10.2 April 1. 20.2 Feb. 20.2 April 1. 20.2

1 Star Superior Super

6. There are different types of DVI connectors. Do some research and describe the differences.

DVI connectors come in three types: DVI-D (digital only), DVI-A (analog only), and DVI-I (integrated digital and analog), with single-link and dual-link variations that affect resolution. DVI-D is used for pure digital signals, DVI-A for analog displays, and DVI-I supports both, making it the most versatile. Dual-link DVI provides higher bandwidth, enabling resolutions up to 2560×1600, whereas single-link maxes out at 1920×1200.

Questions and Exercises cont.

On the next slide is an image of a motherboard with parts missing labels. Fill in as many of these as possible.

