**Journal: Embedded vs. Desktop Systems**

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* How is non-volatile memory different in an embedded system and a desktop system?

For an embedded system, non-volatile memory is used only to store the instructions that the system needs to have to run. Any other information that the system uses would be stored in volatile memory and when power is removed from the device the device loses that information. Desktop systems use non-volatile memory for much greater storage requirements. Like embedded systems, desktops utilize non-volatile memory to store instructions that the system needs to always remember, for example, boot instructions. Unlike embedded systems, desktop systems also utilize non-volatile memory for greater storage needs when desktop users would not want to lose information upon power removal. This could include a large assortment of storage needs including application data, document storage, etc., again, anything that a user might want to have stored on the system without losing that data.

* What are the differences between embedded systems and desktop systems?

The difference between an embedded system and a desktop system is primarily their uses. Embedded systems typically serve to accomplish one main goal or a series of small tasks that achieve a main purpose. Desktop systems, overall, have much greater capabilities and generally accomplish many goals or several tasks that accomplish many purposes. Embedded systems have small amounts of memory to serve their purposes whereas desktop systems make use of much larger amounts of both volatile and non-volatile memory. Embedded systems are generally limited in functionality, and depending on the type of device, may only run one application. Embedded devices have many more constraints compared to desktop systems.

* What are the advantages of various embedded system architectures?

Because they are smaller and limited in their overall functionality, they typically cost less to design and build and require less processing power/performance. Embedded system architectures require less power and can often be run from batteries. Embedded systems can be used in a wide variety of applications including phones, home appliances such as thermostats for heating and air conditioning systems, smoke detectors, ovens, microwaves, etc., and with the evolution of IoT devices, embedded systems are being used more frequently to complete more and more tasks in our daily lives.