**2-2 Journal: Embedded vs. Desktop Systems**

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Non-volatile memory or NVM differs between embedded and desktop systems in a few ways. NVM is used in embedded systems using EEPROMs or ROMs, and generally serves one purpose. Automobiles use embedded systems with NVM to control the engine and other aspects of a vehicle. Using flash memory in this manner allows you to start your car and go, rather than waiting for the operating system to load and run a vehicle management program. Embedded systems use NVM for speed, reliability, and size rather than storage quantity like desktops. Desktops utilize NVM differently. Desktop devices use NVM in the form of solid state drives or SSDs. Using NVM in this way allows desktops to retrieve data faster with a smaller and more reliable hard drive.

Embedded systems excel at performing specific actions, while desktop systems perform better at general use. Desktop systems are much larger and are much easier to upgrade if a part becomes damaged or dated. Desktop systems consume more power and require software updates for security and reliability. Embedded systems are smaller and can’t be upgraded quite as easily. Embedded systems are flashed and perform those actions sometimes without requiring an operating system, like the automotive engine control modules mentioned previously. Embedded systems excel at performing tasks that don’t require much memory and where reliability and durability are important.

Embedded systems work well with systems that require speed over processing power. Engine control modules in automobiles require reliable calculations and operations regardless of the environment. These devices can perform their assigned tasks after countless power cycles. System on chip (SoC) combine many aspects of a desktop onto one chip making them a great choice for devices like cell phones, televisions, and even the Raspberry Pi. Their small profile and capabilities allow them to perform in much smaller applications than could be achieved by desktop systems.