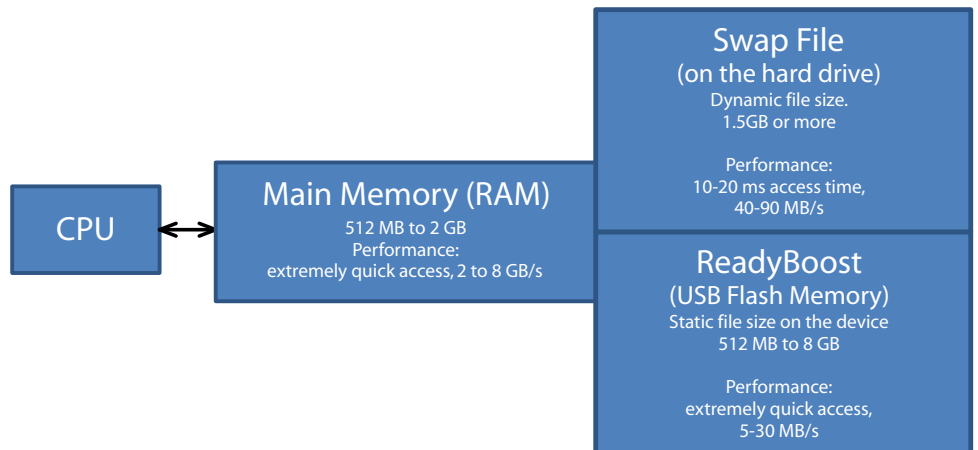


**PEAK Class 101:
How Windows Vista
SuperFetch and
Readyboost work?**



Vista comes with two mechanisms that effectively reduce the time required to launch popular applications: SuperFetch analyzes your behavior and proactively puts applications into available main memory. ReadyBoost allows expanding the main memory size by plugging in a USB 2.0 Flash drive.

Typical PCs today have between 512 MB and 2 GB of main memory. Windows automatically allocates some space on the hard drive to swap main memory data when required. The file size of this known as "swap file" typically is around 1.5 GB or larger. This ensures that all applications can be executed even if the PC has only little RAM, but comparing the performance numbers of RAM and the swap file on the hard drive, system will have a huge negative impact on performance.



Windows caching is efficient if you work with a limited number of applications on a regular basis. For example, if you open and close Microsoft word several times per day, it will launch much quicker as you start it the second time. However, launching other applications might flush the cached data. If you shut down and restart your machine. After a reboot, the main memory will be cleared also known as the cold state. Even if you have 2 or 4 GB of main memory, this available resource will not be used unless an executed application requests memory.

SuperFetch

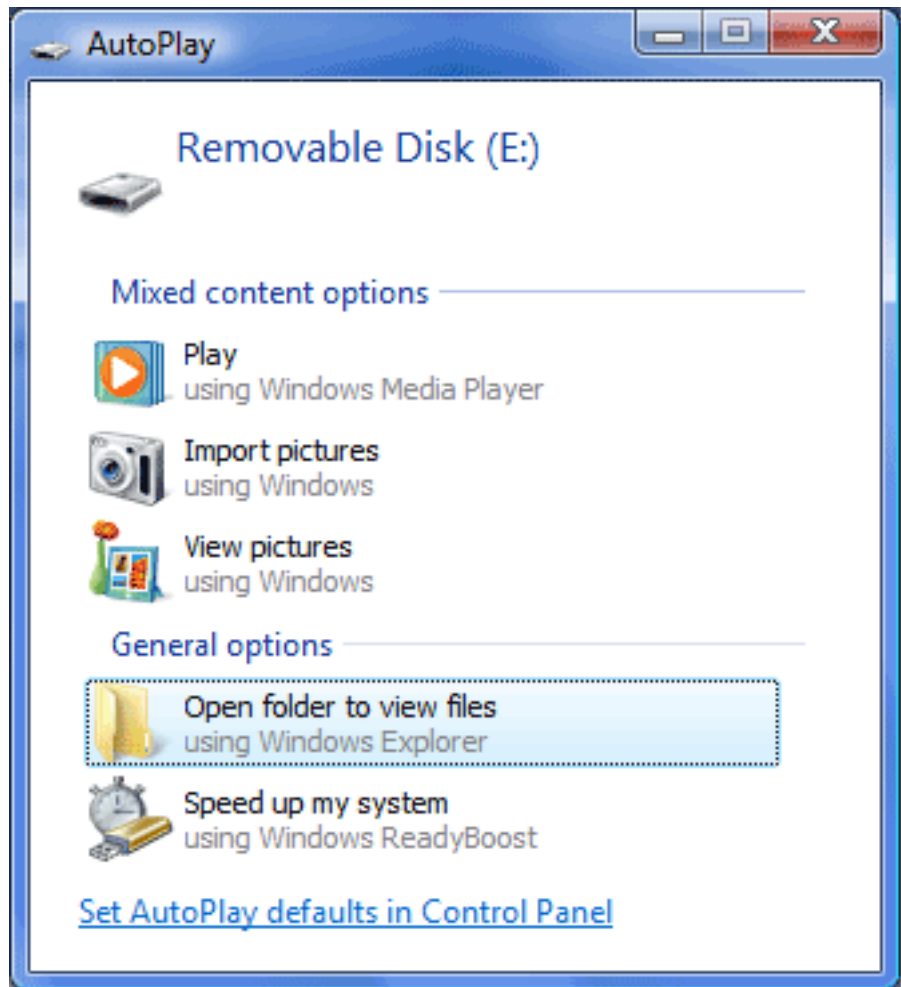
- Server Supports file, print, and named-pipe sharing over the network
- Shell Hardware De... Provides notifications for AutoPlay hardware events.
- SL UI Notification ... Provides Software Licensing activation and notification
- Smart Card Manages access to smart cards read by this computer. If
- Smart Card Remo... Allows the system to be configured to lock the user des
- SNMP Trap Receives trap messages generated by local or remote S
- Software Licensing Enables the download, installation and enforcement of
- SSDP Discovery Discovers networked devices and services that use the S
- Superfetch Maintains and improves system performance over time**
- System Event Noti... Monitors system events and notifies subscribers to COM
- Tablet PC Input Se... Enables Tablet PC pen and ink functionality



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Windows Vista runs a SuperFetch service that analyzes your application behavior and usage patterns, meaning that it tracks which applications you request the most. A good example would be your activity as you start the PC in the morning: You launch Outlook, a messenger, and a web browser. If you do this repeatedly and ideally in the same order, SuperFetch will recognize this pattern and then proactively populate these applications into all available main memory the next time you start the PC. Simply speaking, SuperFetch tries to relocate application data from the slow hard drive into all available memory. It utilizes the available capacity to create a warm memory state to making applications available almost instantaneously.

ReadyBoost



ReadyBoost extends the memory in Windows Vista. It works very much like the swap file on the hard drive, but it is pre-cache application data for popular programs.

ReadyBoost is meant to support the new SuperFetch feature by adding more memory to the system. Microsoft's intended storage device is a USB 2.0 Flash Drive, mainly because these products are incredibly affordable and reasonably fast. The strength of Flash memory isn't exceptional transfer performance, but access times that can almost be called nonexistent. Even if the memory stick that doesn't provide more than 15 MB/s, it will still benefit from its DRAM-like access times. Compared to a hard drive, cannot provide requested data at its maximum transfer performance of 60-80 MB/s due to higher priority system requests, the USB 2.0 Flash Drive is available for serving the SuperFetch purpose.

Conclusion

SuperFetch takes care of buffering applications proactively; ReadyBoost provides the additional memory space to do so. Both new features cannot make systems faster than they are. However, with only a little "learning", Vista will know which applications are most important for you, and it will preload them into available main memory and onto the ReadyBoost device. SuperFetch and ReadyBoost succeeds in utilizing existing resources to provide more balanced performance and better experience with Windows Vista.

