SystemIdle
V1.0

A System Performance Monitoring Utility

Abstract

This modest utility is a desk accessory that provides a metric for measuring the system performance of your Macintosh. It does so by approximately measuring the time that your CPU is idle (i.e. is not doing anything). It periodically displays the results as a percentage of idle time.

SystemIdle has been tested on an Macintosh SE and an Macintosh II under system 6.0.x. But since it adheres strictly to Inside Macintosh, there is no reason to think that it will not work on all currently supported systems. It operates both under the Finder and Multifinder.

SystemIdle is written in Turbo Pascal (sic) and is Freeware.

What is the necessity?

I have often wondered what impact doing certain operations had on my Macintosh (e.g. downloading a file over Kermit, doing backups, etc.). Utilities that would give such system performance information are common on the larger systems that I am familiar with, some even being rather elaborate and expensive. However, not knowing about such a utility for the Macintosh, I decided to create one.

How Does it Work?

The next problem was how measure the system performance? The Macintosh has only limited multitasking capabilities; thus writing a program that would measure what other programs are currently doing in a deterministic fashion is difficult. I also wanted to keep it simple so that it itself would not have any appreciable impact on system performance.

The algorithm that was finally utilized was to have the system periodically deliver a clock tick and measure the intervening time between actual ticks

and compare them to what was expected. The idea here is that on a heavily loaded system, the difference between what was expected and what actually occurred would grow proportionally to the load on the system. This turned out to be a reasonable (if not always deterministic) metric.

How To Use SystemIdle

SystemIdle is a DA. You install it as any other DA using the Font/DA mover. Once you have it installed, simply pull down the Apple Menu at any time and invoke it as you do any other DA. It will put up a small window displaying the percentage it measured that your system is idle. A little flashing colon/period indicates when the measurement was made (about once per second). If the flashing stops, then this indicates that some other application or event is preventing it from running (see below).

To see it operate, after invoking it try the Find File DA. Also, open and close windows to see what effect that has on the idle time. An interesting exercise is to determine what effect the RAM cache has on the idle time.

Limitations

Since the Macintosh is a cooperative, non-preemptive multitasking system (.i.e. it is possible for a program to gain control of the CPU and keep others out), it is quite possible for SystemIdle or any other application not to run for a period of time, depending on what other applications are doing. Therefore, it is more accurate to state that SystemIdle measures the amount of time it is not permitted to run.

When this occurs, the display window will stop updating. Once SystemIdle is allowed to run again, it will resume its updating as normal. Examples of applications or events that cause this are Font/DA mover, BINHEX (V4), or simply holding down the mouse in the Finder window.

Known Problems

I have noticed that SystemIdle does not measure performance properly of [some] appletalk operations upon the system.

Possible Future Enhancements
• The addition of a configuration option to allow of setting of update times, etc.

- The addition of a histogramming display in addition to the simple percentage display.

Release History

V1.0 March 31, 1990.

The Author

SystemIdle was written by Bryan MacKinnon, an employee of Fermi National Accelerator Laboratory (SystemIdle was developed completely independent of my employer). If you have questions or comments, I may be reached via:

Internet: MACKINNON@FNALB.FNAL.GOV
Bitnet: MACKINNON@FNAL

Bryan MacKinnon
Mail Station 120
Fermilab
Batavia, IL 60510