

NAME

boottime, **time_second**, **time_uptime** - system time variables

SYNOPSIS

```
#include <sys/time.h>
```

```
extern struct timeval boottime;
```

```
extern time_t time_second;
```

```
extern time_t time_uptime;
```

DESCRIPTION

The *boottime* variable holds the estimated system boot time. This time is initially set when the system boots, either from the RTC, or from a time estimated from the system's root filesystem. When the current system time is set, stepped by `ntpd(8)`, or a new time is read from the RTC as the system resumes, *boottime* is recomputed as `new_time - uptime`. The `sysctl(8)` *kern.boottime* returns this value.

The *time_second* variable is the system's "wall time" clock to the second.

The *time_uptime* variable is the number of seconds since boot.

The `bintime(9)`, `getbintime(9)`, `microtime(9)`, `getmicrotime(9)`, `nanotime(9)`, and `getnanotime(9)` functions can be used to get the current time more accurately and in an atomic manner. Similarly, the `binuptime(9)`, `getbinuptime(9)`, `microuptime(9)`, `getmicrouptime(9)`, `nanouptime(9)`, and `getnanouptime(9)` functions can be used to get the time elapse since boot more accurately and in an atomic manner. The *boottime* variable may be read and written without special precautions. It is adjusted when the phase of the system time changes.

SEE ALSO

`clock_gettime(2)`, `ntp_adjtime(2)`, `settimeofday(2)`, `bintime(9)`, `binuptime(9)`, `getbintime(9)`, `getbinuptime(9)`, `getmicrotime(9)`, `getmicrouptime(9)`, `getnanotime(9)`, `getnanouptime(9)`, `microtime(9)`, `microuptime(9)`, `nanotime(9)`, `nanouptime(9)`

Poul-Henning Kamp, "Timecounters: Efficient and precise timekeeping in SMP kernels", *Proceedings of EuroBSDCon 2002, Amsterdam*, /usr/share/doc/papers/timecounter.ascii.gz.

Marshall Kirk McKusick and George V. Neville-Neil, *The Design and Implementation of the FreeBSD Operating System*, Addison-Wesley, 57-61,65-66, July 2004.