High Precision Event Timer Driver for Linux

The High Precision Event Timer (HPET) hardware follows a specification
by Intel and Microsoft which can be found at

        http://www.intel.com/hardwaredesign/hpetspec_1.pdf

Each HPET has one fixed-rate counter (at 10+ MHz, hence "High Precision")
and up to 32 comparators. Normally three or more comparators are provided,
each of which can generate oneshot interrupts and at least one of which has
additional hardware to support periodic interrupts. The comparators are
also called "timers", which can be misleading since usually timers are
independent of each other ... these share a counter, complicating resets.

HPET devices can support two interrupt routing modes. In one mode, the
comparators are additional interrupt sources with no particular system
role. Many x86 BIOS writers don't route HPET interrupts at all, which
prevents use of that mode. They support the other "legacy replacement"
mode where the first two comparators block interrupts from 8254 timers
and from the RTC.

The driver supports detection of HPET driver allocation and initialization
of the HPET before the driver module_init routine is called. This enables
platform code which uses timer 0 or 1 as the main timer to intercept HPET
initialization. An example of this initialization can be found in
arch/x86/kernel/hpet.c.

The driver provides a userspace API which resembles the API found in the
RTC driver framework. An example user space program is provided in
file:Documentation/timers/hpet_example.c