Ftrace cheatsheet :: interpreting the symbols (with options/latency-format=1)

```
#                     _-----=> irqs-off
#                    / _----=> need-resched
#                   | / _---=> hardirq/softirq
#                   || / _--=> preempt-depth
#                   ||| /
# CPU   TASK/PID    ||||     DURATION                  FUNCTION CALLS
# |      |    |     ||||     |   |                     |   |   |   |
  0)     ps-5268   |  .....  |      0.157 us  |              } /* seq_puts */
  0)    mycp-786   |  cd.h1  | !  175 us      |     } /* sys_write */
 ^         ^       |  ^      |      ^         |          ^
 cpu#  thread-PID     5/4 cols      time delay      function name
                    \see below/
```

Symbol in (raw) ftrace output	*Meaning*
`'+'`	a *wakeup* has occurred
`==> (or =>)`	a *context switch* has occurred
`==========>`	switch *to an interrupt* context (usually a hard irq) << *ARM* >>
`<==========`	switch back *from an interrupt* context to process context << *ARM* >>
Time (delay) nomenclature ; appears prefixed to the 'Duration' column; eg. `!` `175 us`	
`'@'`	> 100,000 us (100 ms)
`'*'`	> 10,000 us (10 ms)
`'#'`	> 1,000 us (1 ms)
`'!'`	> 100 us (*preempt_mark_thresh)*
`'+'`	> 10 us
`' '`	< 10 us
Latency Trace Format (the four/five columns): eg. `1d.h1`	
First column (is the CPU # when using *trace-cmd(1)*, not present in raw ftrace)	*(If via trace-cmd)* `c: CPU core #` the thread / interrupt was running upon
Second column	*interrupt status:* `'.'` = interrupts enabled; `'d'` = interrupts disabled
Third column	*need-resched:* `'.'` = unset, `'N' = TIF_NEED_RESCHED` bit has been set
Fourth column	*context* `'.'` = process ctx (context); `'h' / 'H'` = hard-irq interrupt ctx ; `'s'` = softirq interrupt ctx (`'h'` = hard irq is running ; `'H'` = hard irq occurred inside / preempted a softirq)
Fifth column	*preempt-depth:* 0 = no locks held, +ve = that many locks are being held

```
# cat <debugfs_mountpt>/tracing/README
...
  available_filter_functions - list of functions that can be filtered on
  set_ftrace_filter  - echo function name in here to only trace these
                       functions
            accepts: func_full_name or glob-matching-pattern
            modules: Can select a group via module
             Format: :mod:<module-name>
            example: echo :mod:ext3 > set_ftrace_filter
...
```

Using the superb **`trace-cmd`** `<...>` front-end to raw Ftrace :

- **`record`** : without option switch `-p <plugin>` to show the *function parameters along with their values*
  - `-e all` to record all events, `-e <ev1 ev2 ...>` to record particular event classes
  - ***TIP:*** use **`-F`** `<cmd>` or **`-P`** `<PID>` to capture events for *only* the process `<cmd>` or given `PID`)
- **`report`** : with option switch `-l` to show the 5 character *latency format* (explained above).

(Tip: try my convenience wrapper over trace-cmd, *trccmd*).