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How to calculate the CPU load when an OS is used?

2023-12-01 - Comments (0) - OS-aware debugging

The CPU load can be computed based on trace information, i.e. off-chip or on-chip trace is needed in this case.

First, you need to set up OS-aware debugging by loading the OS awareness or ORTI file. Please refer to the TRACE32 manual of the used target operating system (e.g. rtos_freertos.pdf for FreeRTOS or rtos_orti.pdf for AUTOSAR CP) for more information.

Example 1: Load ORTI file for AUTOSAR CP

TASK.ORTI < my_orti_file >

Example 2: Load awareness for FreeRTOS on Arm

TASK.CONFIG ~~/demo/arm/kernel/freertos/freertos.t32

Then, task switches need to be recorded in the trace. Please refer to TRACE32 manual of your target OS_for more information.

Example: enable flow trace and task switches recording in the trace based on data trace:

Break.Set TASK.CONFIG(magic) /TraceData

The CPU load can then be computed as the percentage of time the CPU wasn't in the idle loop. The command **Trace.PROfileChart.TASK** gives such a percentage view. You just have to identify the "idle" task(s).

1. Create a task group for this task with merge or hide option:

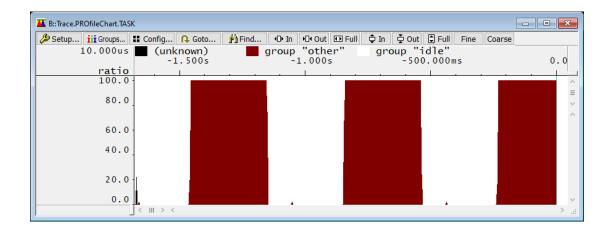
```
GROUP.CreateTASK "idle" "<my_idle_task>" /MERGE
```

e.g.

GROUP.CreateTASK "idle" "NO_TASK" /MERGE

 $2. \ If the \ chart \ should \ not \ distinguish \ between \ the \ other \ tasks, \ you \ may \ also \ merge \ them:$

```
GROUP.COLOR "other" MAROON GROUP.MERGE "other"
```



Note:

If neither off-chip nor onchip trace is available, then the **SNOOPer** can be used to periodically sample the current task. Please note however that the results are in this case not accurate as when using off-chip or on-chip trace since they are based on periodically collected samples. The target processor needs additionally to support accessing the memory on run-time.

Example:

SNOOPer.SELect %Long TASK.CONFIG(magic) SNOOPer.Arm WAIT 5.s SNOOPer.Off GROUP.CreateTASK "idle" "NO_TASK" /MERGE GROUP.COLOR "other" MAROON GROUP.MERGE "other" SNOOPer.PROfileChart.TASK