Extract basic data from a kernel vmcore

You will receive a vmcore file (memory snapshot) generated by a kernel panic induced by a custom kernel module. From the supplied kernel vmcore, extract pieces of data that are of interest.

What to submit:

- .pdf, .html, or simple text (opt. markdown) file containing your solution
- Solution should include:
  - Explicit crash commands used
  - Data outputs containing the required information
  - Commentary on the data, explaining with your own words what the data shows and what specific information/values are important and why.
  - Concrete values (pointers, data types, values) of requested information (see Requirements)
- Make sure to cover all points listed in Requirements.

Procedure:

- Download the supplied files
- Use the `crash` tool to open the vmcore
- Use commands within the `crash` tool to print out and obtain required information
- Summarize your findings and upload your solution

Requirements:

- Elaborate state of the system: Memory utilization, load, process count & states, anything else you find interesting and/or worthy of mentioning.
- Elaborate context "where" the panic happened: which CPU, task & PID, command, codepath
- Explicitly explain what was the reason "why" the kernel panicked.
- What is the type of the relevant lock and what is its pointer address?
- What data structure (type) does the relevant lock "belong" to (what does it lock)?
- Which process is responsible for causing the situation that led to panic and elaborate why/how exactly?
- Suggest a reasonable approach to avoid this kind of kernel panic in the future.
- Include the approximate time (in hours) you have spent working on this assignment.

Points

- Maximum points for this assignment is 15.