

Name ..... ID .....



**Final Exam 2/2010**

**Date: 26/2/2010**

**Time 09.00-12.00**

**241-534 Embedded and Real-time Systems**

**Room R300**

**Lecturer: Watcharin Kaewapichai**

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**Agreement**

- 1. No calculators, no books, and no lecture note**
- 2. In this paper including 10 examinations and 6 pages**

1. In Figure 1

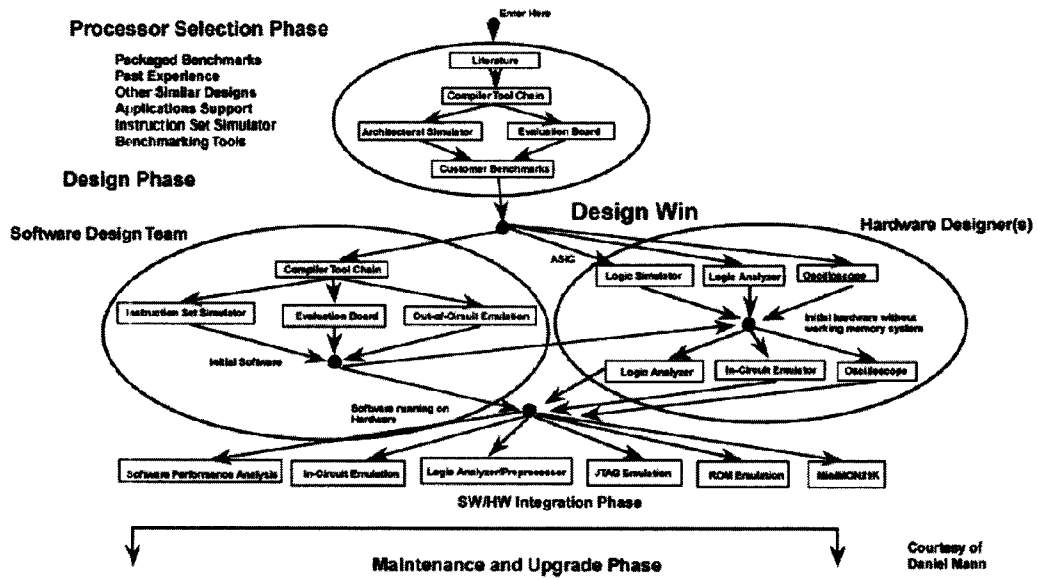


Figure 1 Tool Used in Design process

1.1. In Software Designer(s) and Hardware Designer(s) Teams of Embedded System, Please describe the most importance sharing idea of them to win the production.

1.2. Why is the Maintenance and Upgrade Phase important?

2. The word “someone must decide which portion of the problem which be solved in hardware and which in software”.

2.1. Please describe its meaning.

2.2. Please show an example of its meaning.



6. In Figure 2, please describe the difference between the top and the bottom of the Design Cycle Timing Diagram.

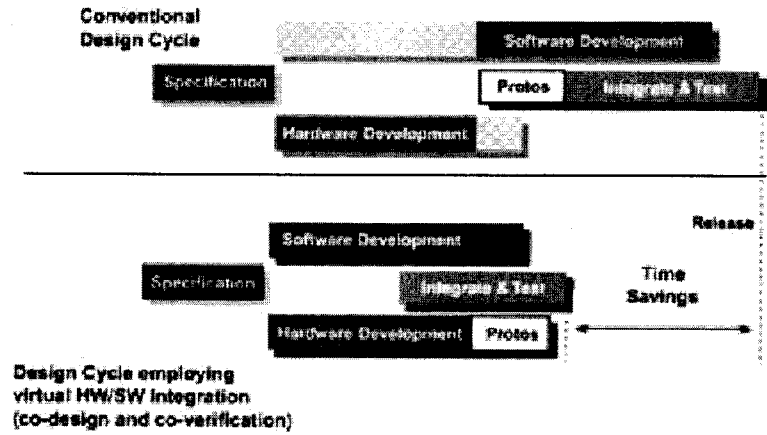


Figure 2 The Design Cycle Timing Diagram

7. In figure 3, please describe the main idea of the table.

Software Type	I/O Density ( percent )
RTOS	0.1 - 1.0
Application	1.0 - 5.0
Driver	1.0 - 10.0
Diagnostic	10.0 - 15.0
Initialization	10.0 - 25.0

\* Courtesy of Mike Stanbro, Synopsys Inc.

Figure 3 Instruction communications directly

8. Please describe the meaning of

8.1. System space memory

8.2. Code space memory

8.3. Data space memory

8.4. Free memory

8.5. Heap memory

8.6. Stack memory

8.7. Interrupt Response Cycle

8.8. Function Call

9. Why is the Detecting Stack Overflow important?

10. What is the main idea of the Real-time Debugging tools?