

2. Potpourri

- (1 pt) a) Which of the following is NOT a consequence of Moore's Law?
- A) The same computer will get cheaper over time
 - B) Transistors get smaller over time
 - ☒ C) Transistors will become twice as energy-efficient every 18 months
 - D) Computer chips can get physically smaller over time

b) Moore's law states that the transistors per chip will double every 18 or 24 months.
(1 pt) (1 pt)

- (1 pt) c) Both the ARM and MIPS architectures were announced about 27 years ago. According to Moore's Law, approximately how many more times transistors per chip do we have today than when these RISC instruction sets were developed?

- A) 64 times more transistors today
- B) 1,000 times more transistors today
- if 24 mo ☒ C) 16,000 times more transistors today
- if 18 mo ☒ D) 256,000 times more transistors today

- (2 pts) d) What is the formula that the assembler should use to calculate the value to place in the address field of a beq or bne machine language instruction? Assume DestAddress is the address of the destination if the branch is taken and PC points to the beq instruction.
For example,

Address	Label	Instruction
10000		beq \$t1,\$t2, DestAddress
...		...
10080	DestAddress:	addu \$t1, \$t2, \$t3

- A) DestAddress
- B) DestAddress / 4
- C) DestAddress * 4
- D) DestAddress - PC
- E) (DestAddress - PC)/4
- F) DestAddress - PC - 4
- ☒ G) (DestAddress - PC - 4) / 4
- H) (DestAddress - PC - 4) * 4
- I) None of the above