Lecture 02132019

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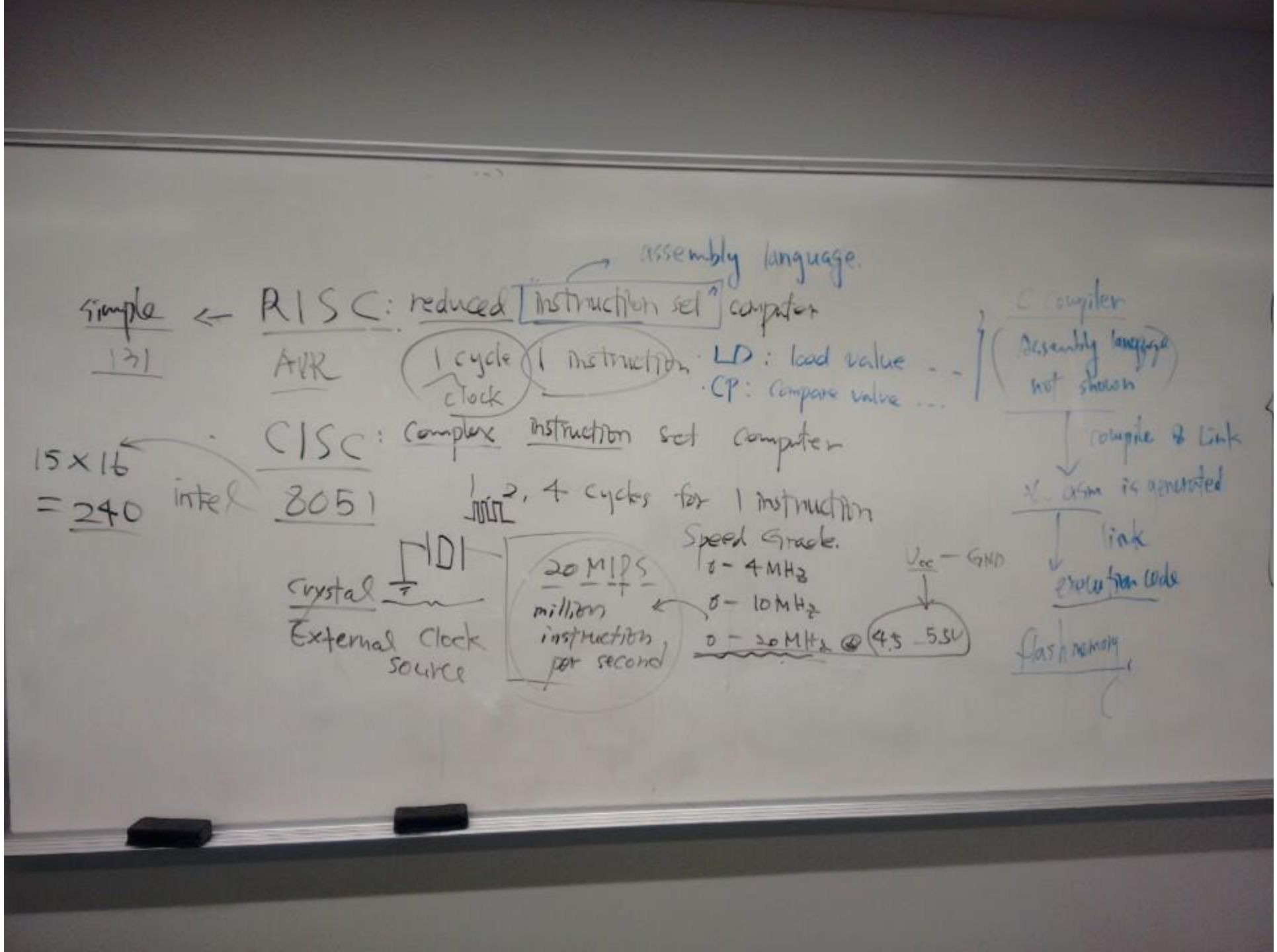
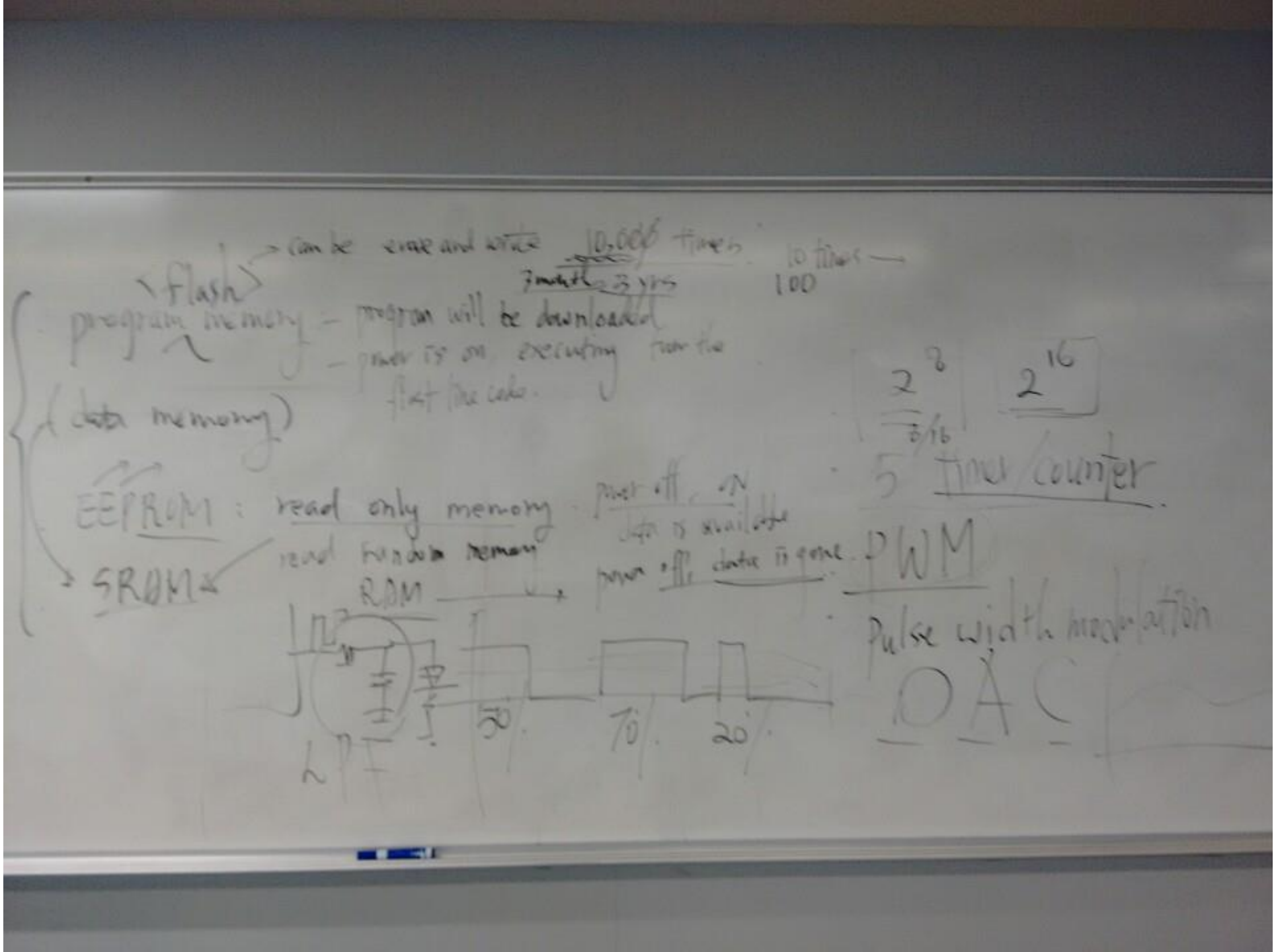
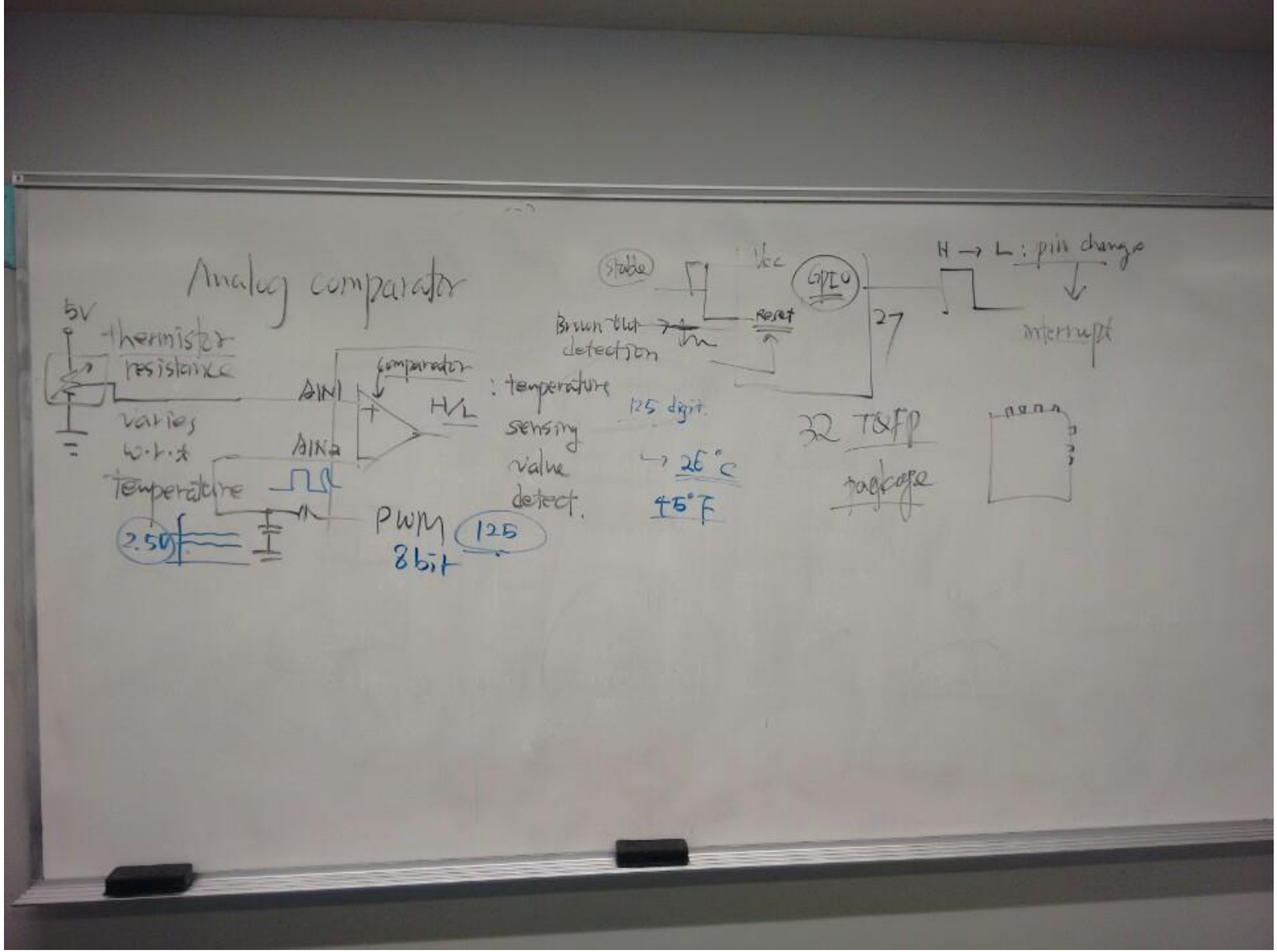

assembly language
simple ← RISC: reduced instruction set computer
131
AVR
1 cycle
clock
1 instruction
LD: load value
CP: Compare value
C compiler
Assembly language not shown
compile & Link
.s .asm is generated
link
execution code
flash memory
CISC: Complex instruction set computer
15 x 16
= 240
intel
8051
2, 4 cycles for 1 instruction
Speed Grade.
0 - 4 MHz
0 - 10 MHz
0 - 20 MHz @ 4.5 - 5.5V
Vcc - GND
20 MIPS
million instruction per second
Crystal
External Clock source



can be erase and write 10,000 times
10 times
100
flash
program memory - program will be downloaded
- power is on executing from the first line code.
(data memory)
EEPROM : read only memory
power off, on data is available
SRAM
read random memory
RAM
power off, data is gone.
2
8
2
16
8/16
5 timer/counter
PWM
Pulse width modulation
DAC
50%
70%
20%
LPF


Analog comparator
5V
thermister resistance
varies w.r.t temperature
2.5V
AIN1
AIN2
comparator
H/L
PWM
8bit
125
: temperature sensing value detect.
125 digit.
↳ 25°C
45°F
stable
Vcc
GPIO
Brown-out detection
Reset
27
H → L : pin change
interrupt
32 T&FP package