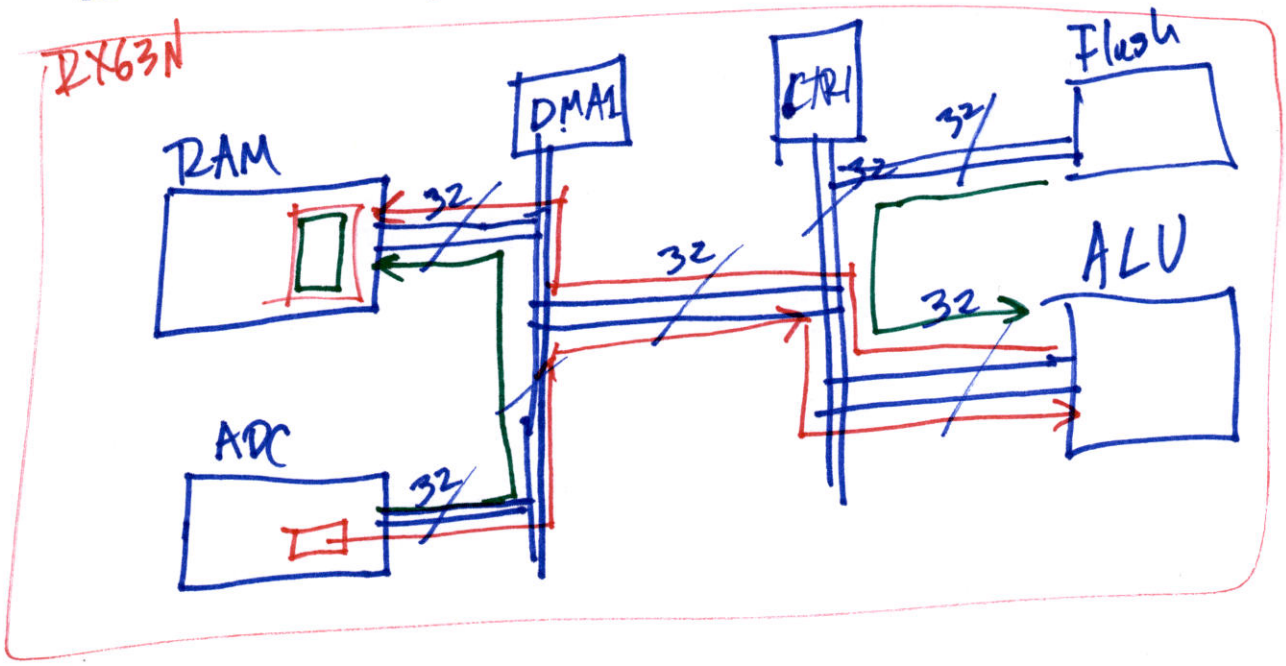
ECGR4101/5101

2016-09-13



ALU
Loop ~~10,000~~ times
Read ADC Data
Write to RAM
RAM Addr = RAM Addr + ~~2~~

3 instruction
3 instruction
1 instruction
---
7 x 10000
= 70,000

ALU
Setup DMAI device
- Starting RAM address
- ADC Address
- 10000 times

20 instructions

Advantages
Time (& resources) of ALU

DMAI
Transfer 10000 times

$2^8 = 256$

28.125

11100.001

+4

Normalize

127

FLOATING POINT!

mantissa = 23

s | exp = 9 | mantissa

0 | 10000011 | 11000010000 0000000 0000

127+4
=131

.625
-.500 1/2 ($1/2^{-1}$)
.125
-.125 1/8 ($1/2^{-3}$)

-65.625

1000001.101

127+6 = 133

s | exp | mantissa

1 | 10000101 | 0000 0110 1000 0000 0000000

-98.53125 → Convert to Floating point

1100010.10001

127+6

S	exp	
1	1000 0101	1000 1010 0010 0000 0000 000

.53125
- .50000 = $1/2^{-1}$
.03125

.25 $1/2^{-2}$
.125 $1/2^{-3}$
.0625 $1/2^{-4}$
.03125 $1/2^{-5}$

Question

67,123,168,153.53125

F A0DA 4399.81

1111 1010 0000 1101 1010 0100 0011 1001 1001.1001

127+35 = 162

0	1010 0010	1111 0100 0001 1011 0100 100