[redacted]

Date: 12/2/13

Project 5

Dr. Dua

4 Bit Flash A/D Converter

The [redacted]

flash A/D c[redacted]

and Op-amp[redacted]

voltage acro[redacted]

non-invertin[redacted]

Amp will be[redacted]

V_A increase[redacted]

the Op-Amp[redacted]

the followin[redacted]

The [redacted]

was 0V the binary output was 0000, and at the point where the binary number incremented the next voltage was recorded at 0001. From this method two sets of data were collected trial 1 and trial 2. The data was plotted using the stairs function in Matlab and the ideal case was included for comparison in figure 4 and 5.

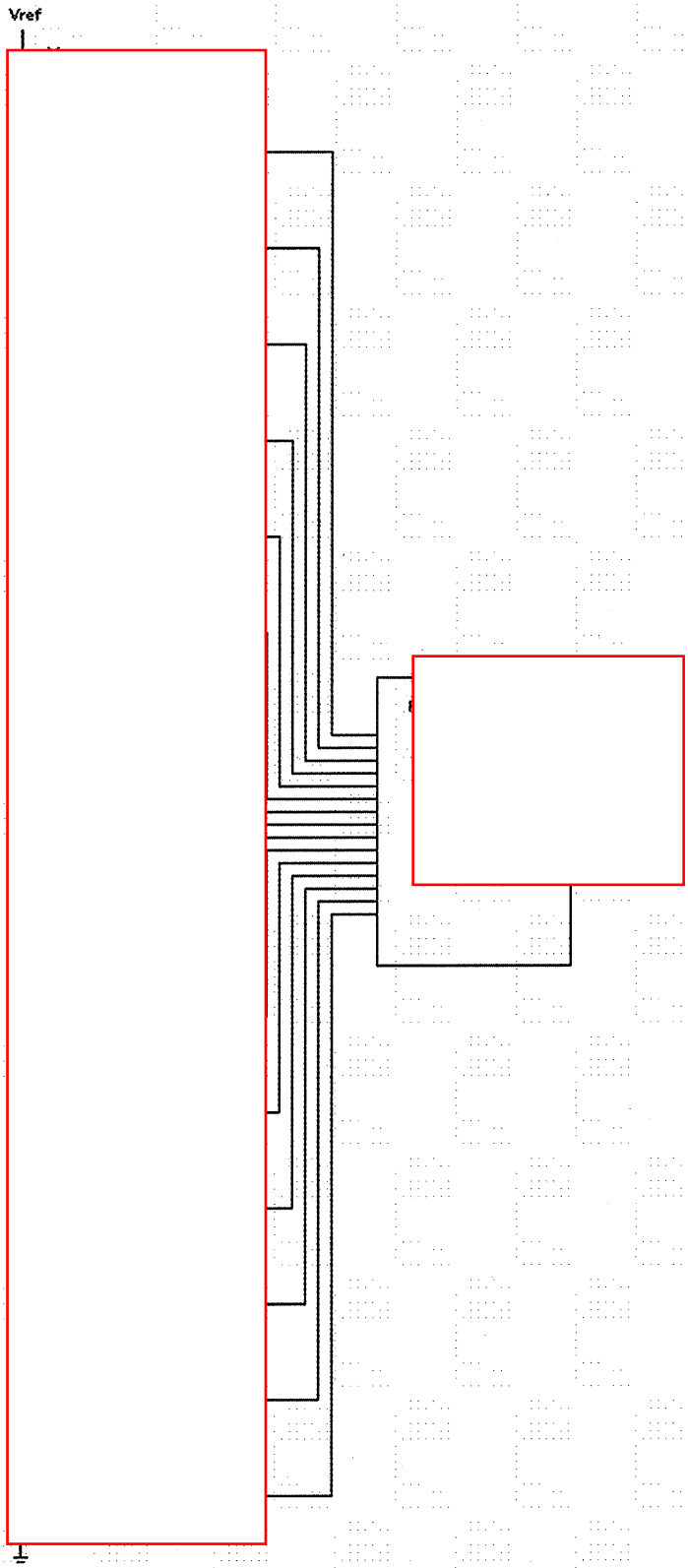

Figure – 1 (Flash Analog to Digital Converter, Va=analog input, and Vref=5V)

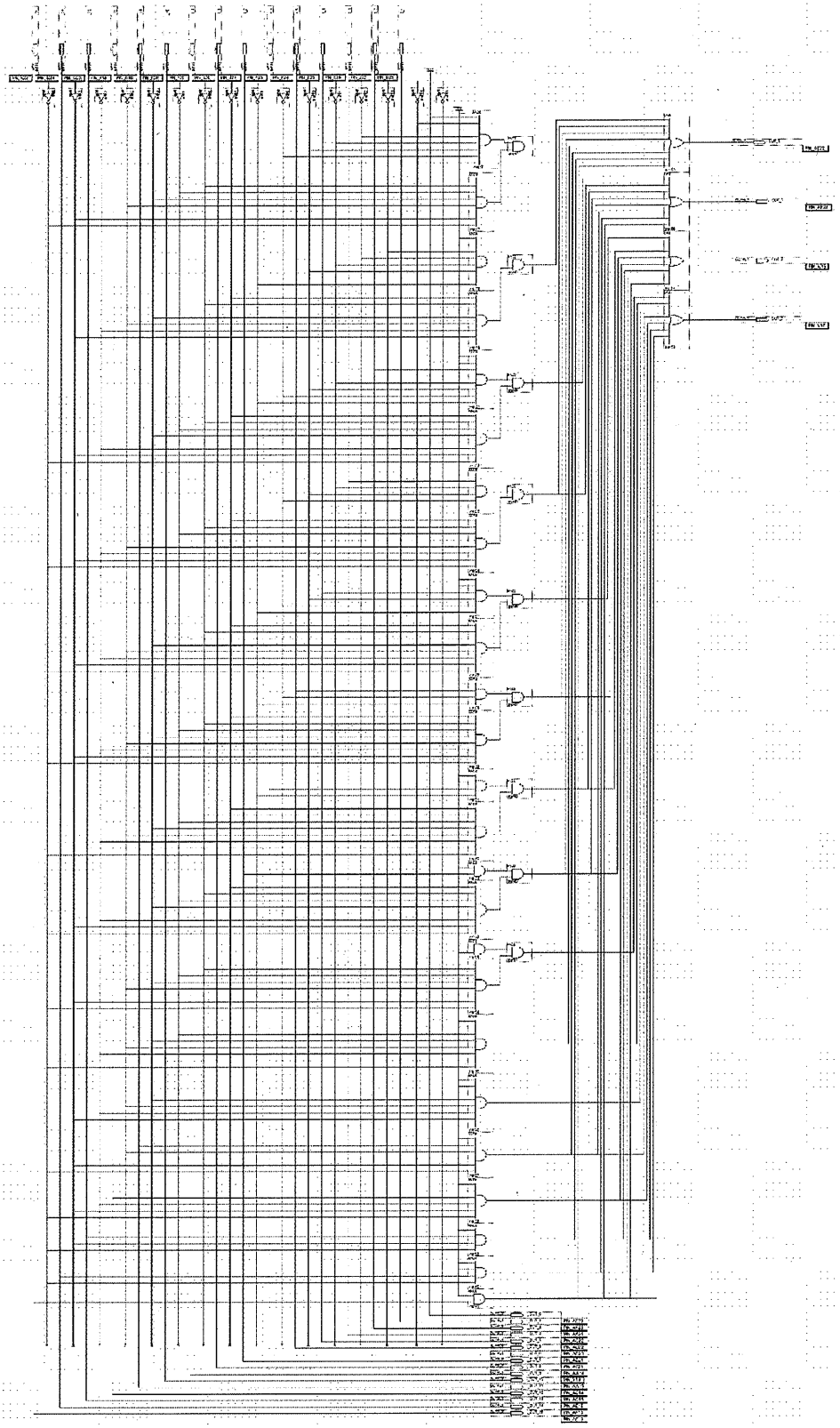

Figure – 2 (Priority Encoder)

Table – 1 (Ideal and measured voltage values taken when the binary number increments)

binary	Ideal (volts)	Trial 1 (volts)	Trial 2 (volts)
0000	0	0	0
0001	0.15625	0.17758	1.17180
0010	0.46875	0.49732	0.48038
0011	0.78125	0.78455	0.82613
0100	1.09375	1.13348	1.160344
0101	1.40625	1.4524	1.4051
0110	1.71875	1.7228	1.7277
0111	2.03125	2.0955	2.1036
1000	2.34375	2.3584	2.4575
1001	2.65625	2.7118	2.6591
1010	2.96875	2.9829	2.9771
1011	3.28125	3.3469	3.2820
1100	3.59375	3.6028	3.6346
1101	3.90625	3.9735	3.9271
1110	4.21875	4.2247	4.2680
1111	4.53125	4.5616	4.6434

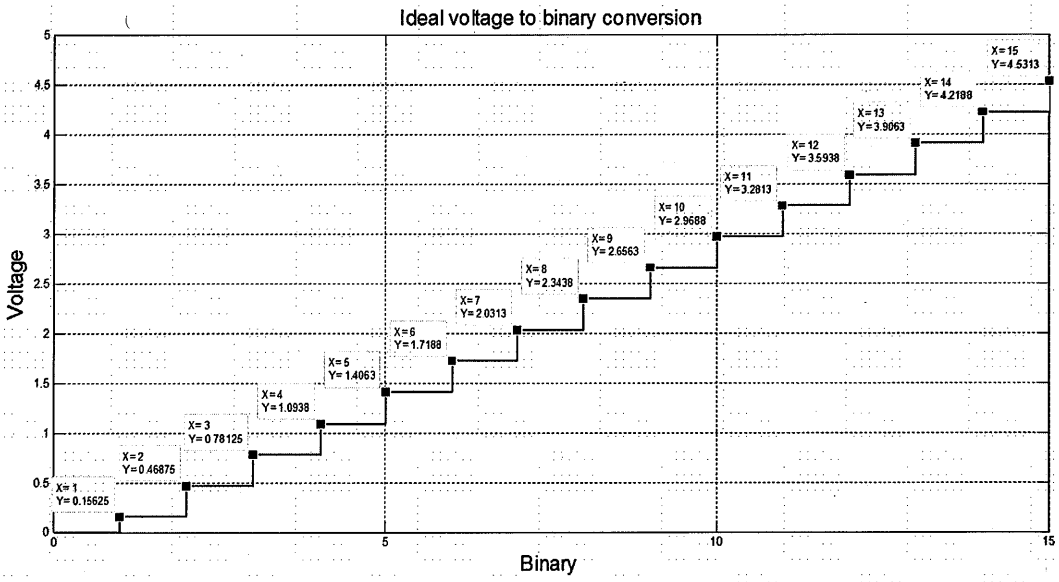

Figure – 3(Ideal voltage to binary transition points)

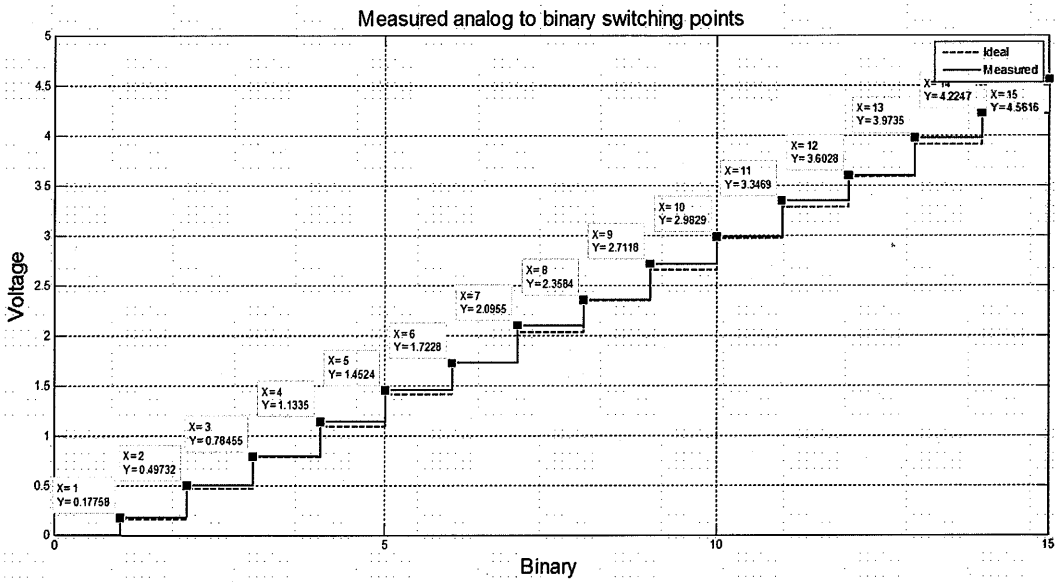

Figure - 4(Trial 1 measured input voltage at the transition from one binary number to the next)

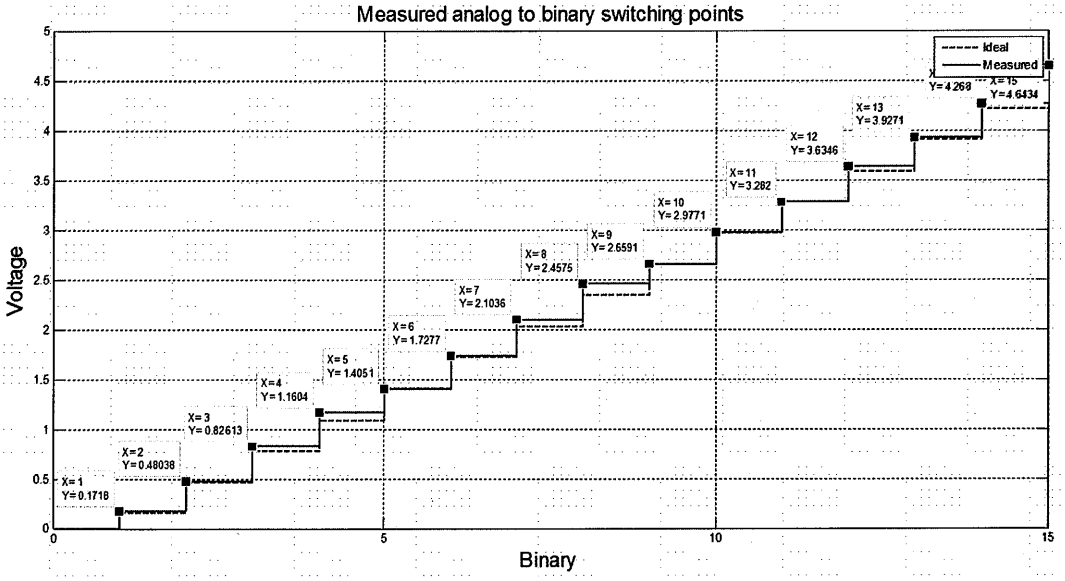

Figure-5(Trial 2 measured input voltage at the transition from one binary number to the next)