Lab 3 Project Report

Introduction :-

This Lab was divided into 3 parts. We started with Paulmon, then Buffer creation and then MSP432.

Paulmon :-

For Paulmon, to be working as 0-3FF (Internally as of 1Kb) I put extra one line of AUXR register and for address 400-7FFF (externally as of rest 31Kb) I changed the code in Wincupl.

In Paulmon there are different commands like ‘D’ for downloading hex file in Paulmon.

‘L’ is for List file. In this we can know about the Registers which are used for obtaining memory addresses and their values.

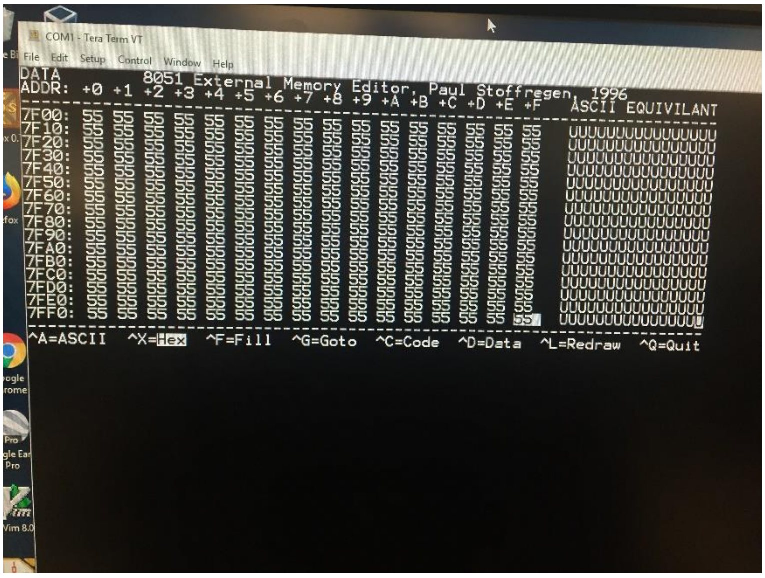
‘S’ for single step Function. While compiling a long code if you want to check something in between we can use Single Step Function.

‘E’ is used for editing the memory.

‘A’ is used for getting the ASCII value of data

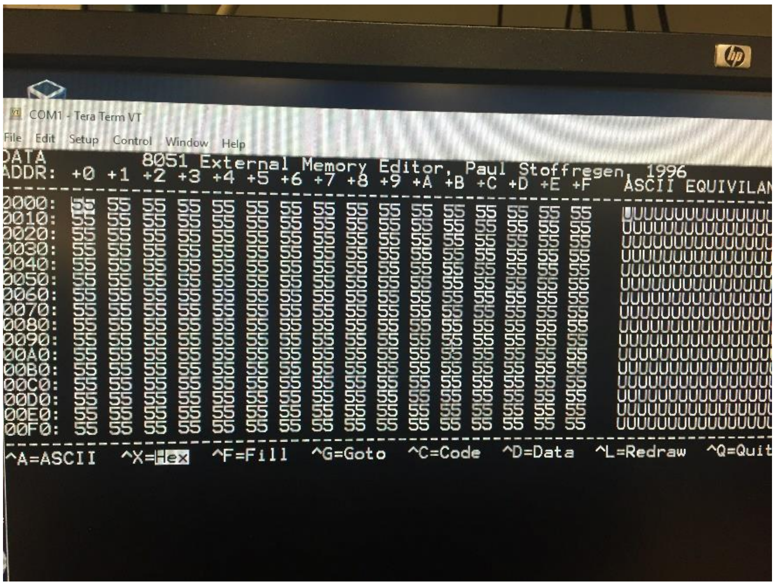
The logic I have put for Wincupl is such that it wont change the value above 7FFF. So from 8000-FFFF whatever data I put it does not gets changed.

Below are the few Screenshots for the same.

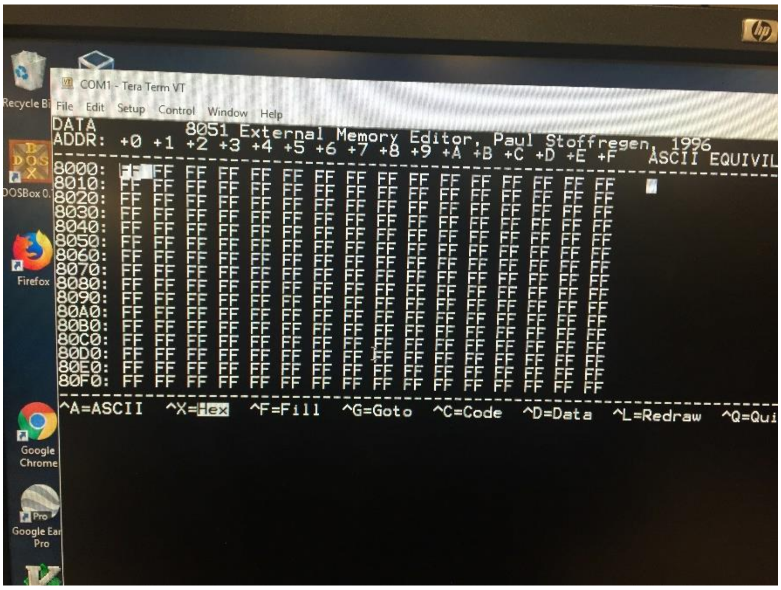


```
DATA              8051 External Memory Editor, Paul Stoffregen, 1996
ADDR: +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +A +B +C +D +E +F   ASCII EQUIVILANT
--------------------------------------------------------------------------
7F00: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
7F10: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
7F20: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
7F30: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
7F40: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
7F50: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
7F60: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
7F70: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
7F80: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
7F90: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
7FA0: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
7FB0: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
7FC0: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
7FD0: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
7FE0: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
7FF0: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
--------------------------------------------------------------------------
^A=ASCII   ^X=Hex   ^F=Fill   ^G=Goto   ^C=Code   ^D=Data   ^L=Redraw   ^Q=Quit
```

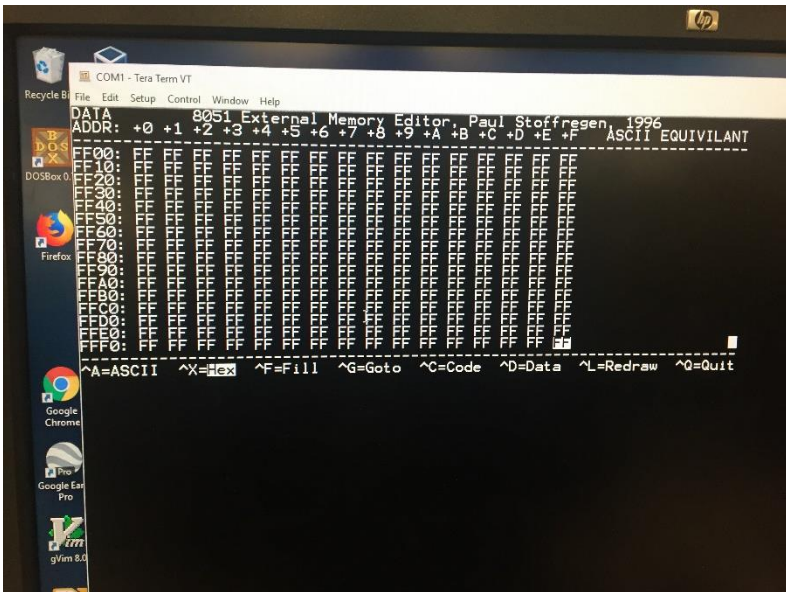
Lab 3 Project Report



```
DATA          8051 External Memory Editor, Paul Stoffregen, 1996
ADDR: +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +A +B +C +D +E +F   ASCII EQUIVILAN
-----------------------------------------------------------------------
0000: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
0010: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
0020: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
0030: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
0040: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
0050: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
0060: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
0070: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
0080: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
0090: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
00A0: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
00B0: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
00C0: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
00D0: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
00E0: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
00F0: 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55   UUUUUUUUUUUUUUUU
-----------------------------------------------------------------------
^A=ASCII   ^X=Hex   ^F=Fill   ^G=Goto   ^C=Code   ^D=Data   ^L=Redraw   ^Q=Quit
```

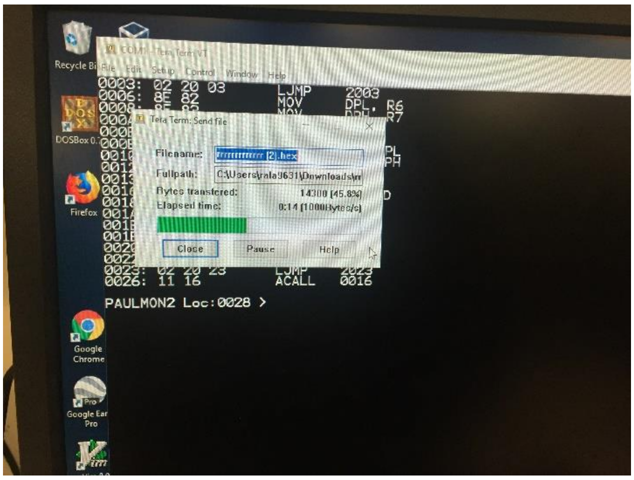


```
DATA          8051 External Memory Editor, Paul Stoffregen, 1996
ADDR: +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +A +B +C +D +E +F   ASCII EQUIVIL
---------------------------------------------------------------------
8000: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
8010: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
8020: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
8030: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
8040: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
8050: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
8060: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
8070: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
8080: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
8090: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
80A0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
80B0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
80C0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
80D0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
80E0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
80F0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
---------------------------------------------------------------------
^A=ASCII   ^X=Hex   ^F=Fill   ^G=Goto   ^C=Code   ^D=Data   ^L=Redraw   ^Q=Qui
```



```
DATA          8051 External Memory Editor, Paul Stoffregen, 1996
ADDR: +0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +A +B +C +D +E +F   ASCII EQUIVILANT
------------------------------------------------------------------------
FF00: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF10: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF20: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF30: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF40: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF50: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF60: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF70: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF80: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF90: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FFA0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FFB0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FFC0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FFD0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FFE0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FFF0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
------------------------------------------------------------------------
^A=ASCII   ^X=Hex   ^F=Fill   ^G=Goto   ^C=Code   ^D=Data   ^L=Redraw   ^Q=Quit
```

Lab 3 Project Report



```
0003: 02 20 03          LJMP    2003
0006: 8E 82             MOV     DPL, R6
0008: 8F 83             MOV     DPH, R7
0023: 02 20 23          LJMP    2023
0026: 11 16             ACALL   0016
PAULMON2 Loc:0028 >
```

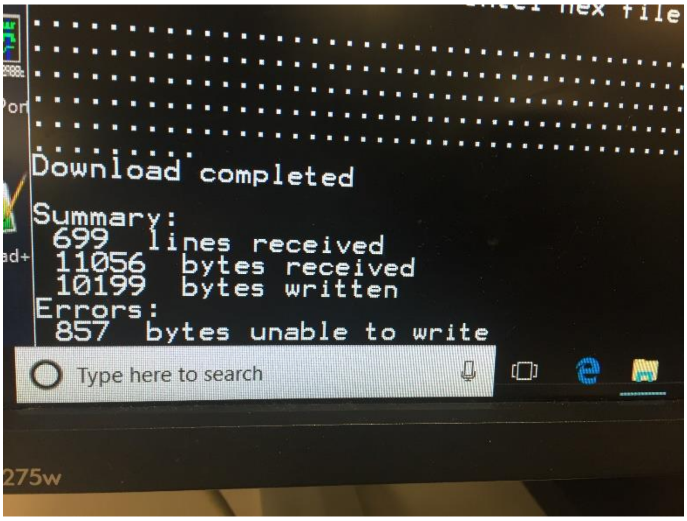
Tera Term: Send file

Filename: rrrrrrrrrrr (2).hex

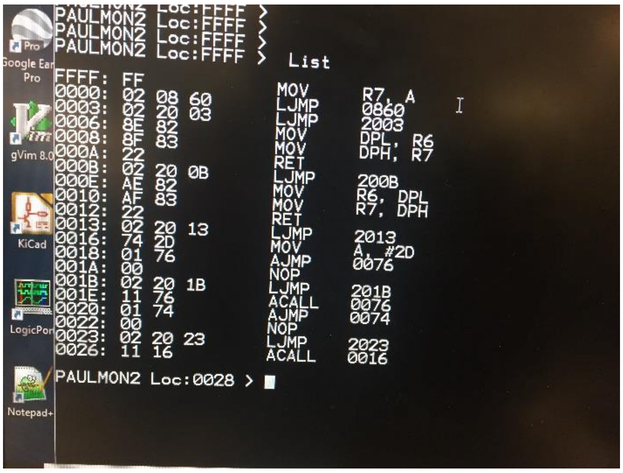
Fullpath: C:\Users\rala9631\Downloads\rr

Bytes transfered: 14300 (45.8%)

Elapsed time: 0:14 (1000Bytes/s)

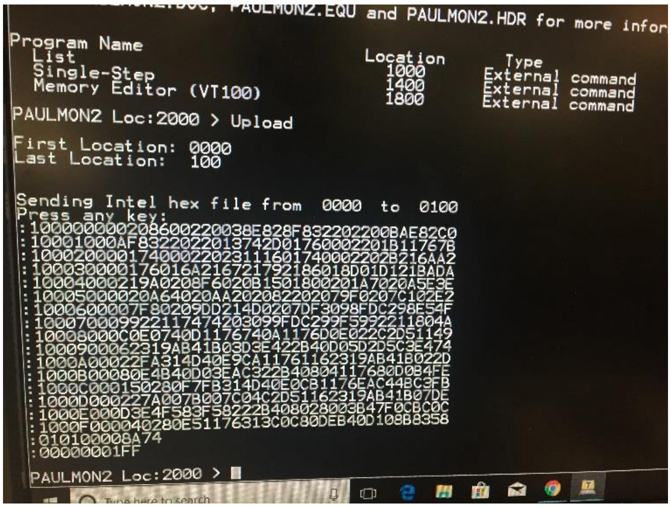


```
hex file
.................................................
.................................................
.................................................
.................................................
.................................................
.........
Download completed

Summary:
 699   lines received
 11056  bytes received
 10199  bytes written
Errors:
 857   bytes unable to write
```

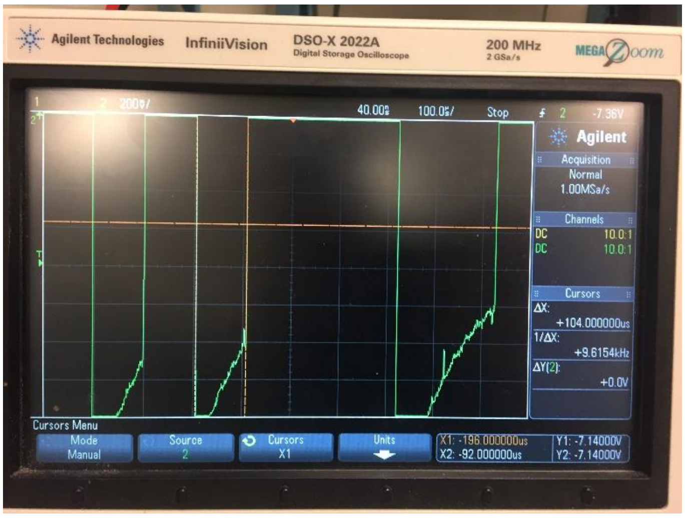


```
PAULMON2 Loc:FFFF >
PAULMON2 Loc:FFFF >
PAULMON2 Loc:FFFF >
PAULMON2 Loc:FFFF >  List
FFFF: FF                MOV     R7, A
0000: 02 08 60          LJMP    0860
0003: 02 20 03          LJMP    2003
0006: 8E 82             MOV     DPL, R6
0008: 8F 83             MOV     DPH, R7
000A: 22                RET
000B: 02 20 0B          LJMP    200B
000E: AE 82             MOV     R6, DPL
0010: AF 83             MOV     R7, DPH
0012: 22                RET
0013: 02 20 13          LJMP    2013
0016: 74 2D             MOV     A, #2D
0018: 01 76             AJMP    0076
001A: 00                NOP
001B: 02 20 1B          LJMP    201B
001E: 11 76             ACALL   0076
0020: 01 74             AJMP    0074
0022: 00                NOP
0023: 02 20 23          LJMP    2023
0026: 11 16             ACALL   0016
PAULMON2 Loc:0028 >
```

Lab 3 Project Report



```
DOC, PAULMON2.EQU and PAULMON2.HDR for more infor
Program Name                               Location     Type
  List                                       1000      External command
  Single-Step                                1400      External command
  Memory Editor (VT100)                      1800      External command
PAULMON2 Loc:2000 > Upload
First Location: 0000
Last Location:  100

Sending Intel hex file from  0000  to  0100
Press any key:
:1000000002086002200038E828F832202200BAE82C0
:10001000AF8322022013742D01760002201B11767B
:1000200001740002202311160174000220 2B216AA2
:10003000176016A2167217921860 18D01D121BADA
:10004000219A0208F6020B1501800201A7020A5E3E
:1000500020A64020AA202082202079F0207C102E2
:1000600007F80209DD214D0207DF3098FDC298E54F
:100070009922117474203099FDC299F5992211804A
:10008000C0E0740D1176740A1176D0E022C2D51149
:10009000062319AB41B03D3E422B40D05D2D5C3E474
:1000A00022FA314D40E9CA1176116 2319AB41B022D
:1000B00080E4B40D03EAC322B408041176 80D0B4FE
:1000C000150280F7FB314D40E0CB1176EAC44BC3FB
:1000D000227A007B007C04C2D51162319AB41B07DE
:1000E000D3E4F583F58222B408028003B47F0CBC0C
:1000F00040280E51176313C0C80DEB40D108B8358
:010100008A74
:00000001FF

PAULMON2 Loc:2000 >
```



Buffer Creation :-

SDCC 2.6 version is the compiler for our IDE Code Blocks

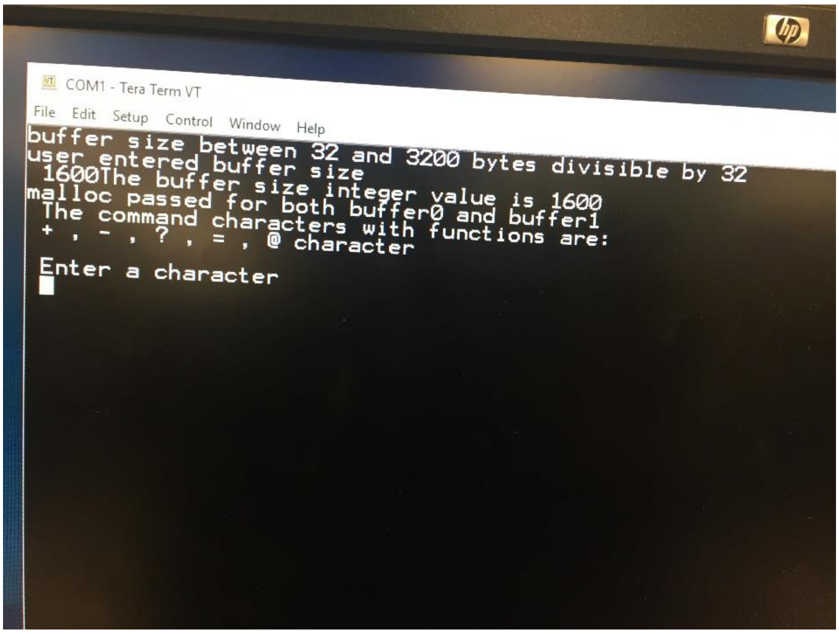
For Buffer Creation we have used a heap Size of 4000. Buffers are created like Buffer 0 and Buffer 1.

We also used debug port in this to check the value at different commands like “+”,”-“, “?” ,”@” , “=”

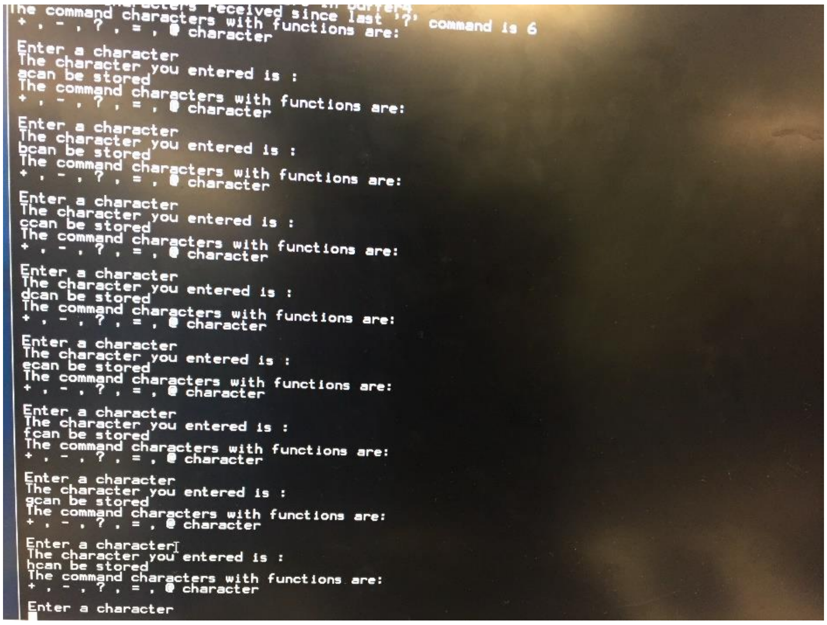
For different commands we got different outputs

Screenshots of it are shown

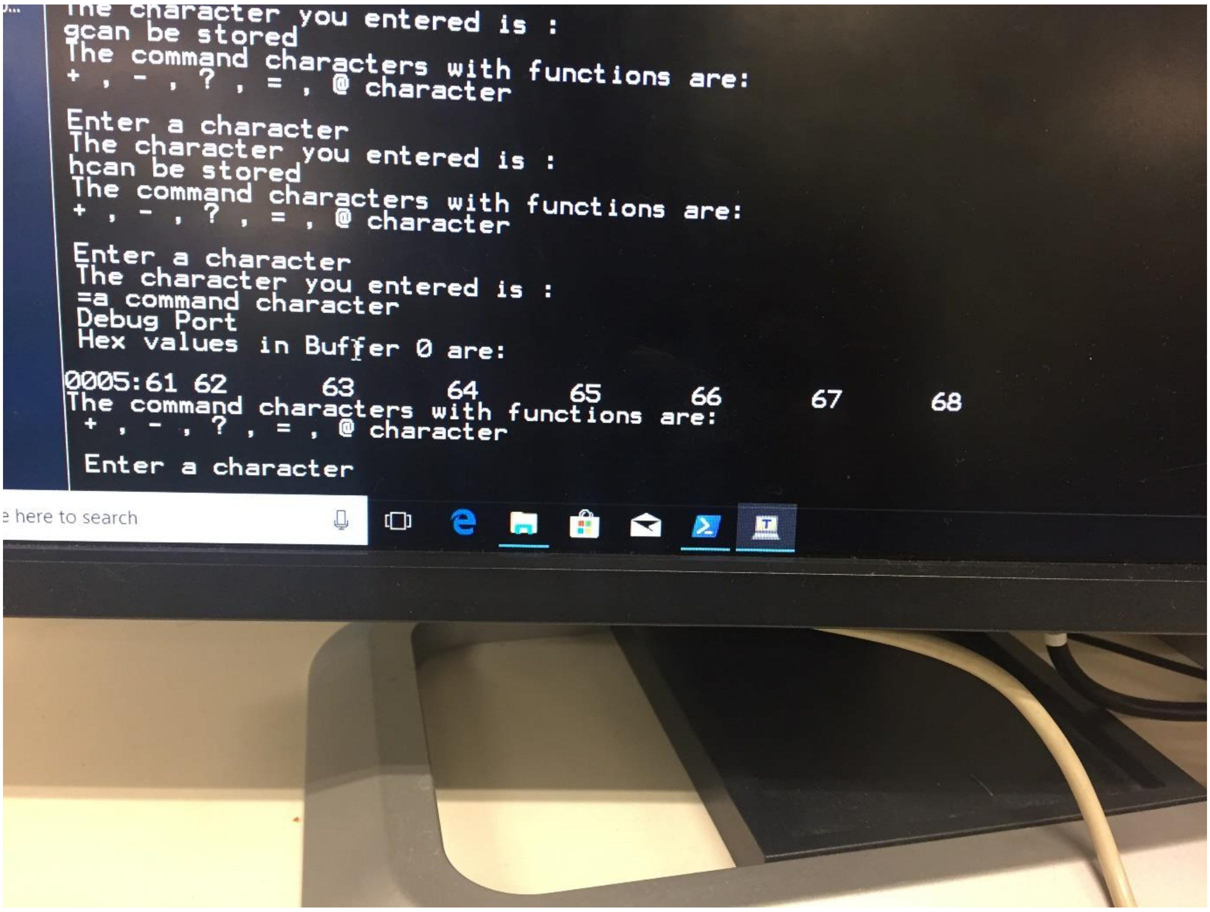
Lab 3 Project Report



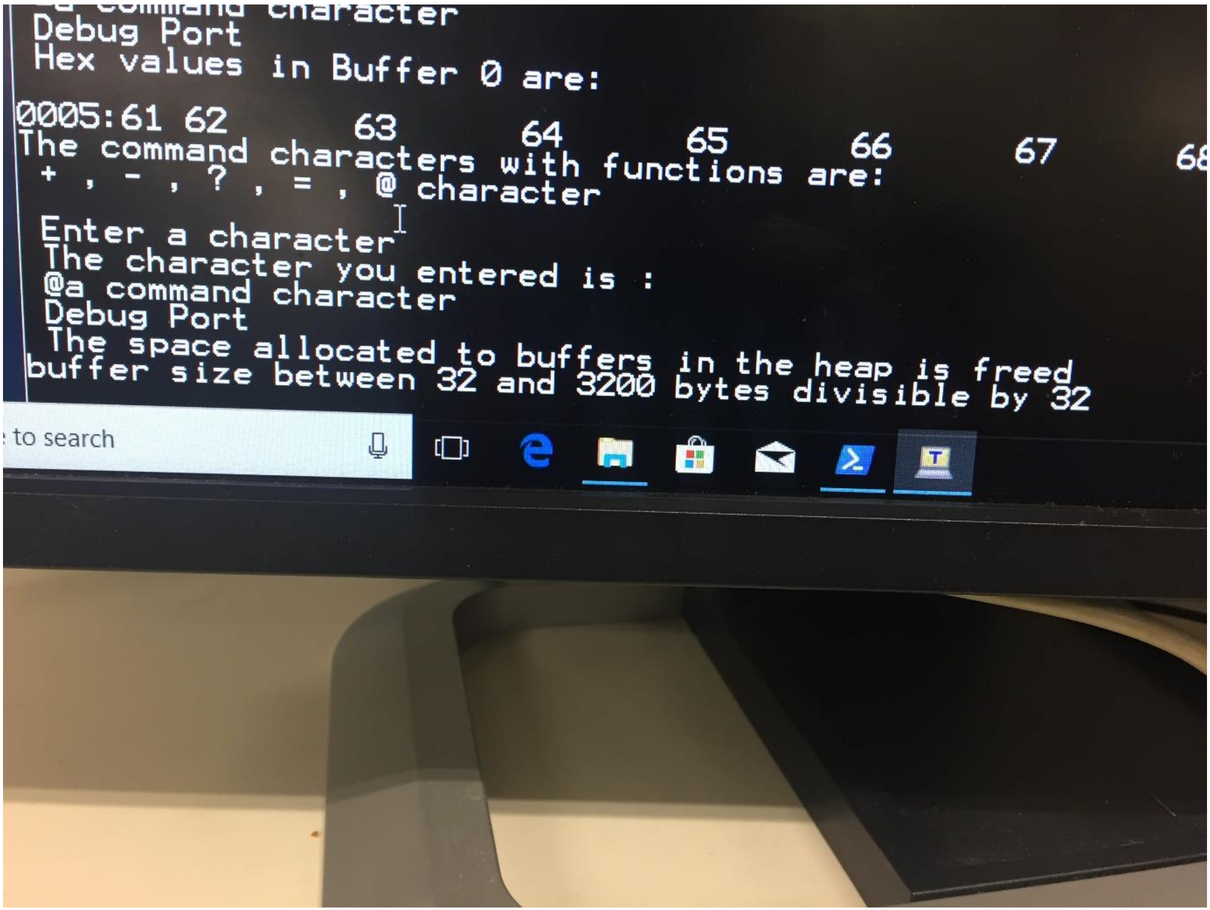
```
buffer size between 32 and 3200 bytes divisible by 32
user entered buffer size
 1600The buffer size integer value is 1600
malloc passed for both buffer0 and buffer1
 The command characters with functions are:
 + , - , ? , = , @ character

 Enter a character
```



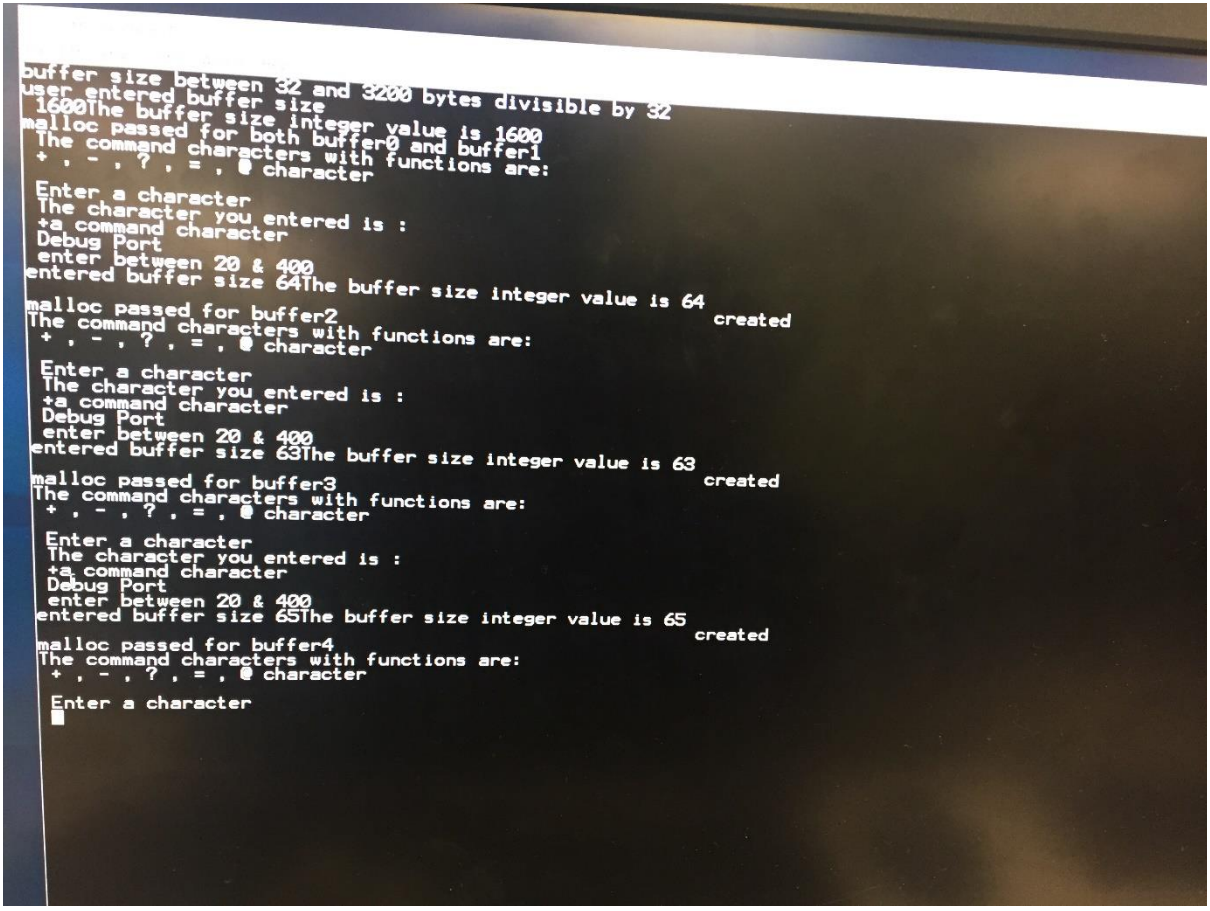
```
 characters received since last '?' command is 6
The command characters with functions are:
 + , - , ? , = , @ character
 Enter a character
 The character you entered is :
 acan be stored
 The command characters with functions are:
 + , - , ? , = , @ character
 Enter a character
 The character you entered is :
 bcan be stored
 The command characters with functions are:
 + , - , ? , = , @ character
 Enter a character
 The character you entered is :
 ccan be stored
 The command characters with functions are:
 + , - , ? , = , @ character
 Enter a character
 The character you entered is :
 dcan be stored
 The command characters with functions are:
 + , - , ? , = , @ character
 Enter a character
 The character you entered is :
 ecan be stored
 The command characters with functions are:
 + , - , ? , = , @ character
 Enter a character
 The character you entered is :
 fcan be stored
 The command characters with functions are:
 + , - , ? , = , @ character
 Enter a character
 The character you entered is :
 gcan be stored
 The command characters with functions are:
 + , - , ? , = , @ character
 Enter a character
 The character you entered is :
 hcan be stored
 The command characters with functions are:
 + , - , ? , = , @ character
 Enter a character
```



```
The character you entered is :
gcan be stored
The command characters with functions are:
+ , - , ? , = , @ character

Enter a character
The character you entered is :
hcan be stored
The command characters with functions are:
+ , - , ? , = , @ character

Enter a character
The character you entered is :
=a command character
Debug Port
Hex values in Buffer 0 are:

0005:61 62      63      64      65      66      67      68
The command characters with functions are:
 + , - , ? , = , @ character

 Enter a character
```

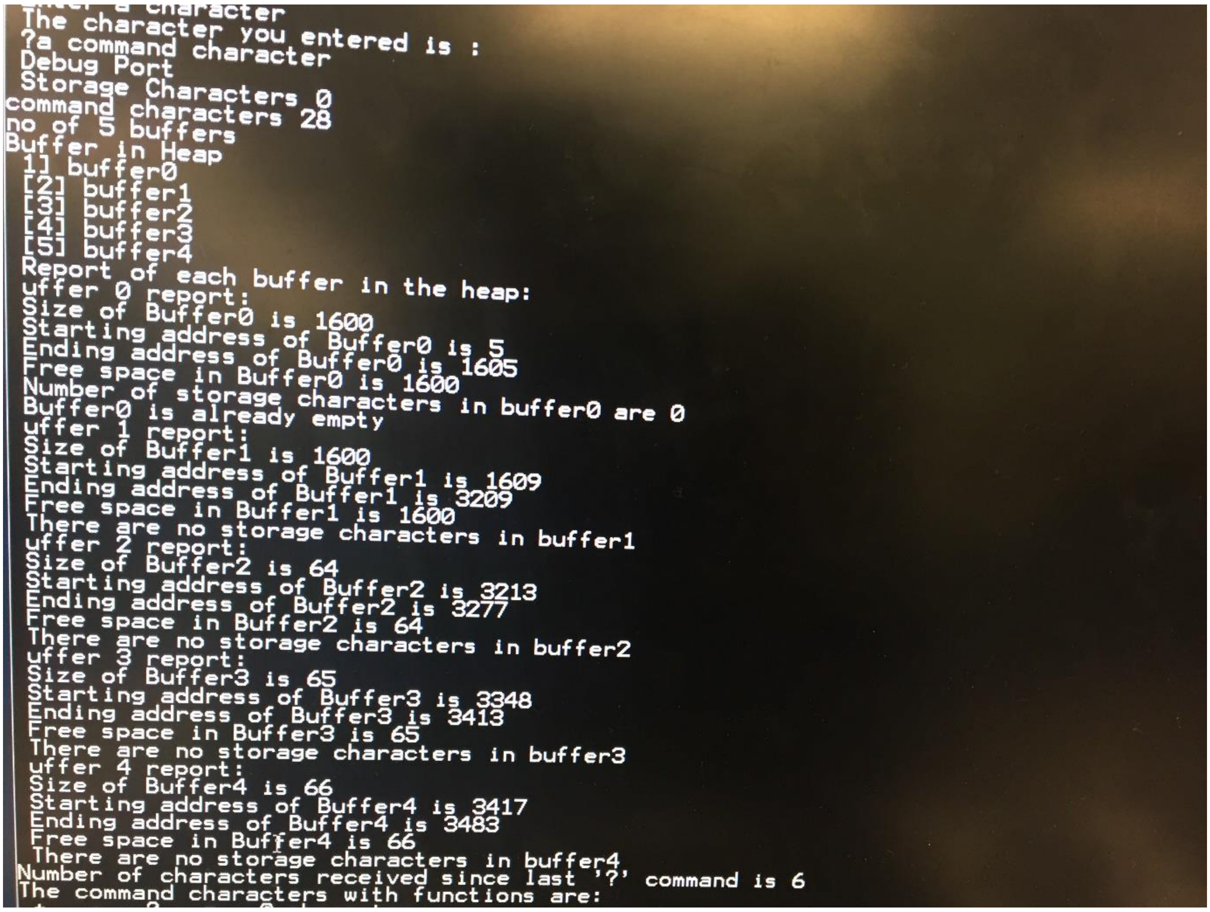


```
 a command character
 Debug Port
 Hex values in Buffer 0 are:

0005:61 62        63        64        65        66        67        68
The command characters with functions are:
 + , - , ? , = , @ character

 Enter a character
 The character you entered is :
 @a command character
 Debug Port
 The space allocated to buffers in the heap is freed
buffer size between 32 and 3200 bytes divisible by 32
```

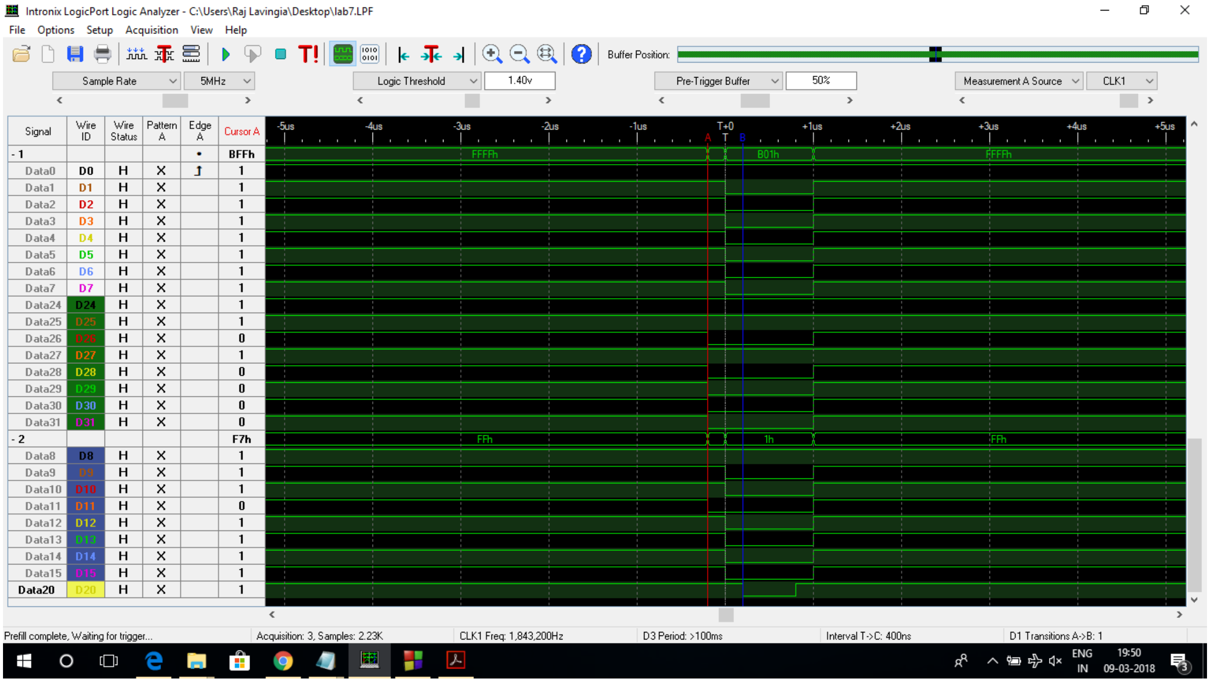


```
buffer size between 32 and 3200 bytes divisible by 32
user entered buffer size
 1600The buffer size integer value is 1600
malloc passed for both buffer0 and buffer1
 The command characters with functions are:
 + , - , ? , = , @ character

 Enter a character
 The character you entered is :
 +a command character
 Debug Port
 enter between 20 & 400
entered buffer size 64The buffer size integer value is 64
                                                        created
malloc passed for buffer2
The command characters with functions are:
 + , - , ? , = , @ character

 Enter a character
 The character you entered is :
 +a command character
 Debug Port
 enter between 20 & 400
entered buffer size 63The buffer size integer value is 63
                                                        created
malloc passed for buffer3
The command characters with functions are:
 + , - , ? , = , @ character

 Enter a character
 The character you entered is :
 +a command character
 Debug Port
 enter between 20 & 400
entered buffer size 65The buffer size integer value is 65
                                                        created
malloc passed for buffer4
The command characters with functions are:
 + , - , ? , = , @ character

 Enter a character
 █
```

Lab 3 Project Report



```
Enter a character
The character you entered is :
?a command character
Debug Port
Storage Characters 0
command characters 28
no of 5 buffers
Buffer in Heap
1] buffer0
[2] buffer1
[3] buffer2
[4] buffer3
[5] buffer4
Report of each buffer in the heap:
uffer 0 report:
Size of Buffer0 is 1600
Starting address of Buffer0 is 5
Ending address of Buffer0 is 1605
Free space in Buffer0 is 1600
Number of storage characters in buffer0 are 0
Buffer0 is already empty
uffer 1 report:
Size of Buffer1 is 1600
Starting address of Buffer1 is 1609
Ending address of Buffer1 is 3209
Free space in Buffer1 is 1600
There are no storage characters in buffer1
uffer 2 report:
Size of Buffer2 is 64
Starting address of Buffer2 is 3213
Ending address of Buffer2 is 3277
Free space in Buffer2 is 64
There are no storage characters in buffer2
uffer 3 report:
Size of Buffer3 is 65
Starting address of Buffer3 is 3348
Ending address of Buffer3 is 3413
Free space in Buffer3 is 65
There are no storage characters in buffer3
uffer 4 report:
Size of Buffer4 is 66
Starting address of Buffer4 is 3417
Ending address of Buffer4 is 3483
Free space in Buffer4 is 66
There are no storage characters in buffer4
Number of characters received since last '?' command is 6
The command characters with functions are:
```



Intronix LogicPort Logic Analyzer - C:\Users\Raj Lavingia\Desktop\lab7.LPF

Sample Rate: 5MHz
Logic Threshold: 1.40v
Pre-Trigger Buffer: 50%
Measurement A Source: CLK1

Signal	Wire ID	Wire Status	Pattern A	Edge A	Cursor A
- 1				•	BFFh
Data0	D0	H	X	↥	1
Data1	D1	H	X		1
Data2	D2	H	X		1
Data3	D3	H	X		1
Data4	D4	H	X		1
Data5	D5	H	X		1
Data6	D6	H	X		1
Data7	D7	H	X		1
Data24	D24	H	X		1
Data25	D25	H	X		1
Data26	D26	H	X		0
Data27	D27	H	X		1
Data28	D28	H	X		0
Data29	D29	H	X		0
Data30	D30	H	X		0
Data31	D31	H	X		0
- 2					F7h
Data8	D8	H	X		1
Data9	D9	H	X		1
Data10	D10	H	X		1
Data11	D11	H	X		0
Data12	D12	H	X		1
Data13	D13	H	X		1
Data14	D14	H	X		1
Data15	D15	H	X		1
Data20	D20	H	X		1

Prefill complete, Waiting for trigger... | Acquisition: 3, Samples: 2.23K | CLK1 Freq: 1,843,200Hz | D3 Period: >100ms | Interval T->C: 400ns | D1 Transitions A->B: 1

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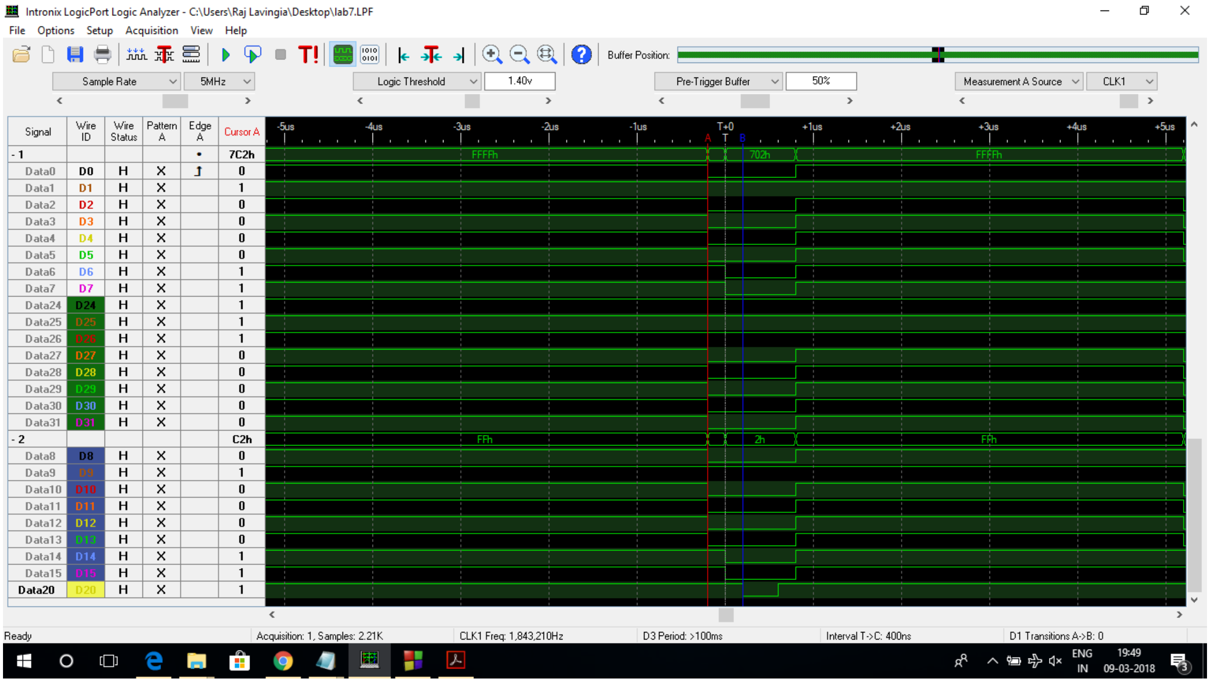
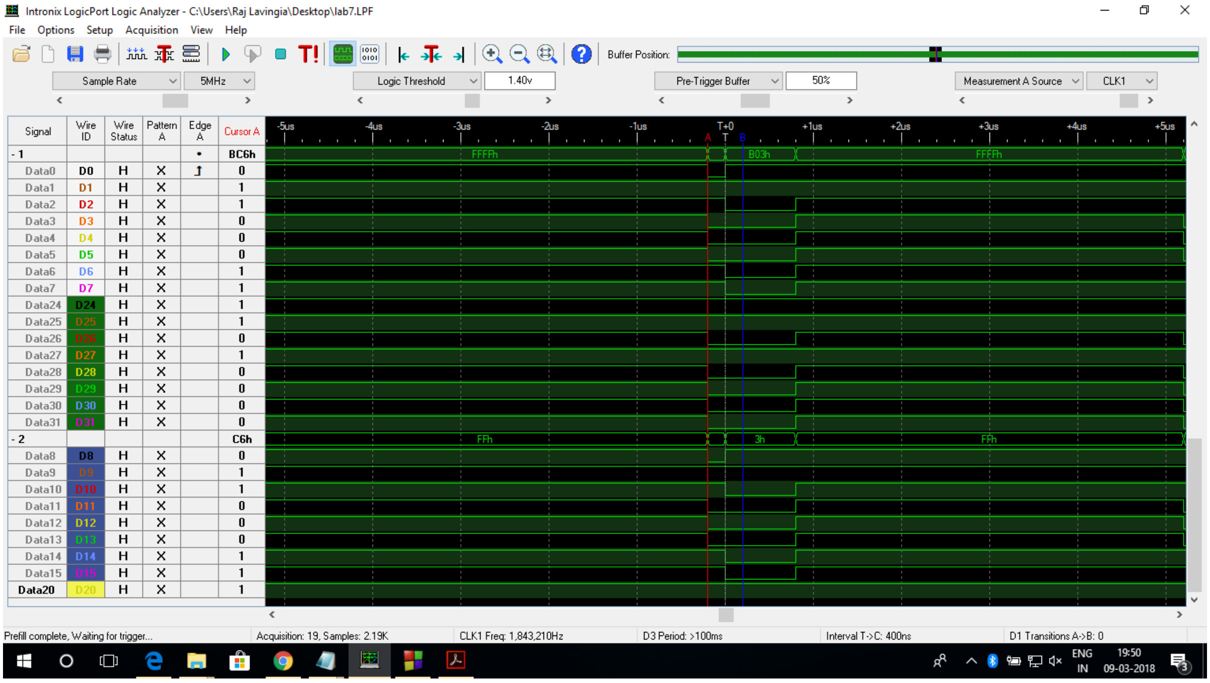


Intronix LogicPort Logic Analyzer - C:\Users\Raj Lavingia\Desktop\lab7.LPF

Sample Rate: 5MHz | Logic Threshold: 1.40v | Pre-Trigger Buffer: 50% | Measurement A Source: CLK1

Signal	Wire ID	Wire Status	Pattern A	Edge A	Cursor A
- 1				•	7C2h
Data0	D0	H	X	↑	0
Data1	D1	H	X		1
Data2	D2	H	X		0
Data3	D3	H	X		0
Data4	D4	H	X		0
Data5	D5	H	X		0
Data6	D6	H	X		1
Data7	D7	H	X		1
Data24	D24	H	X		1
Data25	D25	H	X		1
Data26	D26	H	X		1
Data27	D27	H	X		0
Data28	D28	H	X		0
Data29	D29	H	X		0
Data30	D30	H	X		0
Data31	D31	H	X		0
- 2					C2h
Data8	D8	H	X		0
Data9	D9	H	X		1
Data10	D10	H	X		0
Data11	D11	H	X		0
Data12	D12	H	X		0
Data13	D13	H	X		0
Data14	D14	H	X		1
Data15	D15	H	X		1
Data20	D20	H	X		1

Ready | Acquisition: 1, Samples: 2.21K | CLK1 Freq: 1,843,210Hz | D3 Period: >100ms | Interval T->C: 400ns | D1 Transitions A->B: 0



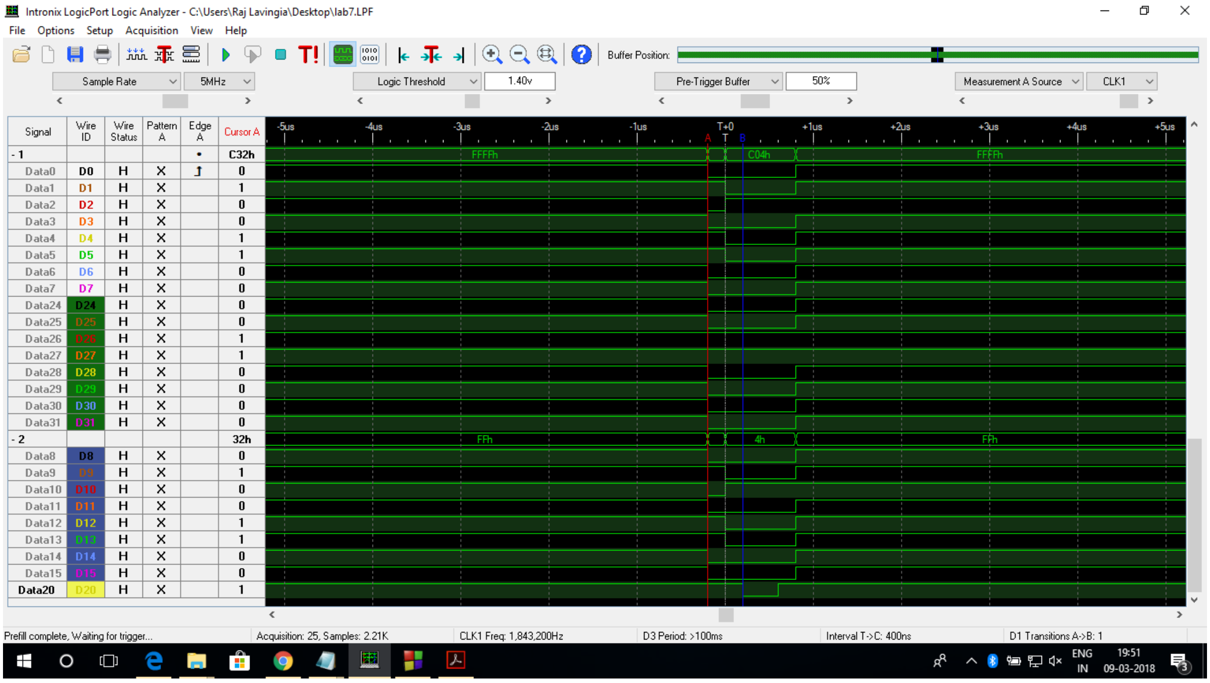
Intronix LogicPort Logic Analyzer - C:\Users\Raj Lavingia\Desktop\lab7.LPF

Sample Rate: 5MHz | Logic Threshold: 1.40v | Pre-Trigger Buffer: 50% | Measurement A Source: CLK1

Signal	Wire ID	Wire Status	Pattern A	Edge A	Cursor A
- 1				•	BC6h
Data0	D0	H	X	↑	0
Data1	D1	H	X		1
Data2	D2	H	X		1
Data3	D3	H	X		0
Data4	D4	H	X		0
Data5	D5	H	X		0
Data6	D6	H	X		1
Data7	D7	H	X		1
Data24	D24	H	X		1
Data25	D25	H	X		1
Data26	D26	H	X		0
Data27	D27	H	X		1
Data28	D28	H	X		0
Data29	D29	H	X		0
Data30	D30	H	X		0
Data31	D31	H	X		0
- 2					C6h
Data8	D8	H	X		0
Data9	D9	H	X		1
Data10	D10	H	X		1
Data11	D11	H	X		0
Data12	D12	H	X		0
Data13	D13	H	X		0
Data14	D14	H	X		1
Data15	D15	H	X		1
Data20	D20	H	X		1

Prefill complete, Waiting for trigger... | Acquisition: 19, Samples: 2.19K | CLK1 Freq: 1,843,210Hz | D3 Period: >100ms | Interval T->C: 400ns | D1 Transitions A->B: 0

Lab 3 Project Report



Intronix LogicPort Logic Analyzer - C:\Users\Raj Lavingia\Desktop\lab7.LPF

Sample Rate: 5MHz

Logic Threshold: 1.40v

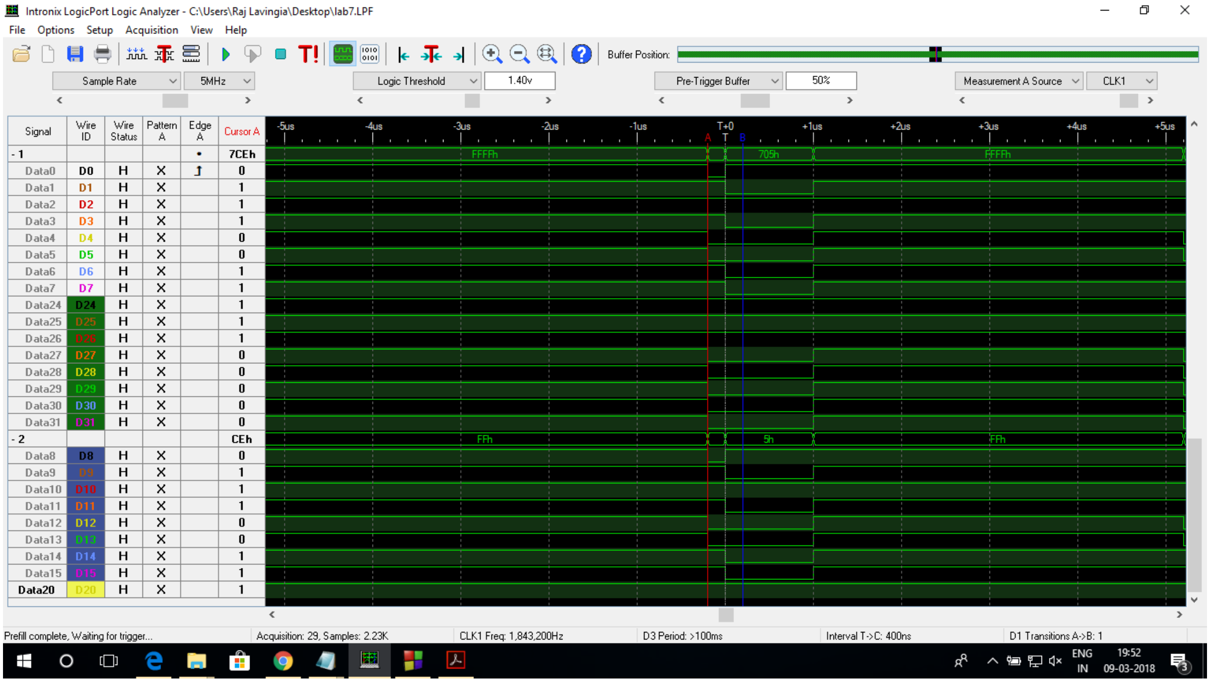
Pre-Trigger Buffer: 50%

Measurement A Source: CLK1

Signal	Wire ID	Wire Status	Pattern A	Edge A	Cursor A
- 1				•	C32h
Data0	D0	H	X	↥	0
Data1	D1	H	X		1
Data2	D2	H	X		0
Data3	D3	H	X		0
Data4	D4	H	X		1
Data5	D5	H	X		1
Data6	D6	H	X		0
Data7	D7	H	X		0
Data24	D24	H	X		0
Data25	D25	H	X		0
Data26	D26	H	X		1
Data27	D27	H	X		1
Data28	D28	H	X		0
Data29	D29	H	X		0
Data30	D30	H	X		0
Data31	D31	H	X		0
- 2					32h
Data8	D8	H	X		0
Data9	D9	H	X		1
Data10	D10	H	X		0
Data11	D11	H	X		0
Data12	D12	H	X		1
Data13	D13	H	X		1
Data14	D14	H	X		0
Data15	D15	H	X		0
Data20	D20	H	X		1

Prefill complete, Waiting for trigger... | Acquisition: 25, Samples: 2.21K | CLK1 Freq: 1,843,200Hz | D3 Period: >100ms | Interval T->C: 400ns | D1 Transitions A->B: 1

ENG IN 19:51 09-03-2018



Intronix LogicPort Logic Analyzer - C:\Users\Raj Lavingia\Desktop\lab7.LPF

Sample Rate: 5MHz

Logic Threshold: 1.40v

Pre-Trigger Buffer: 50%

Measurement A Source: CLK1

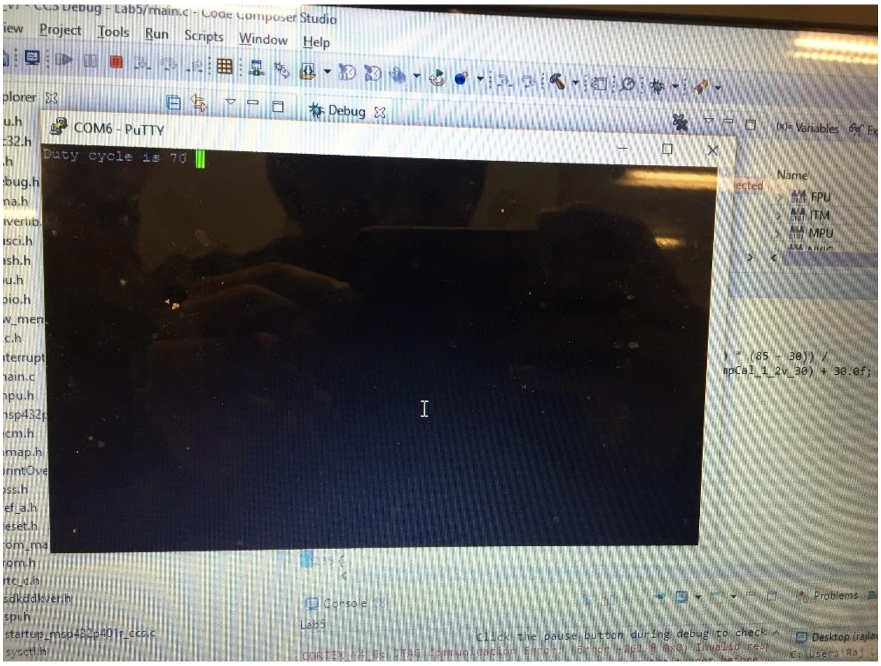
Signal	Wire ID	Wire Status	Pattern A	Edge A	Cursor A
- 1				•	7CEh
Data0	D0	H	X	↥	0
Data1	D1	H	X		1
Data2	D2	H	X		1
Data3	D3	H	X		1
Data4	D4	H	X		0
Data5	D5	H	X		0
Data6	D6	H	X		1
Data7	D7	H	X		1
Data24	D24	H	X		1
Data25	D25	H	X		1
Data26	D26	H	X		1
Data27	D27	H	X		0
Data28	D28	H	X		0
Data29	D29	H	X		0
Data30	D30	H	X		0
Data31	D31	H	X		0
- 2					CEh
Data8	D8	H	X		0
Data9	D9	H	X		1
Data10	D10	H	X		1
Data11	D11	H	X		1
Data12	D12	H	X		0
Data13	D13	H	X		0
Data14	D14	H	X		1
Data15	D15	H	X		1
Data20	D20	H	X		1

Prefill complete, Waiting for trigger... | Acquisition: 29, Samples: 2.23K | CLK1 Freq: 1,843,200Hz | D3 Period: >100ms | Interval T->C: 400ns | D1 Transitions A->B: 1

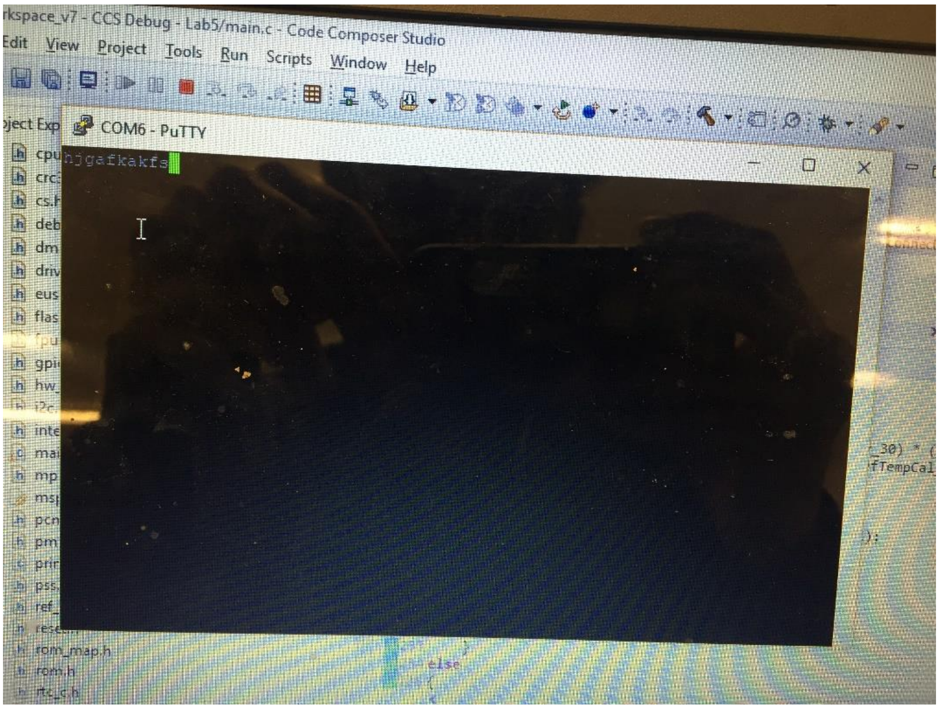
ENG IN 19:52 09-03-2018

Lab 3 Project Report

MSP432 :-

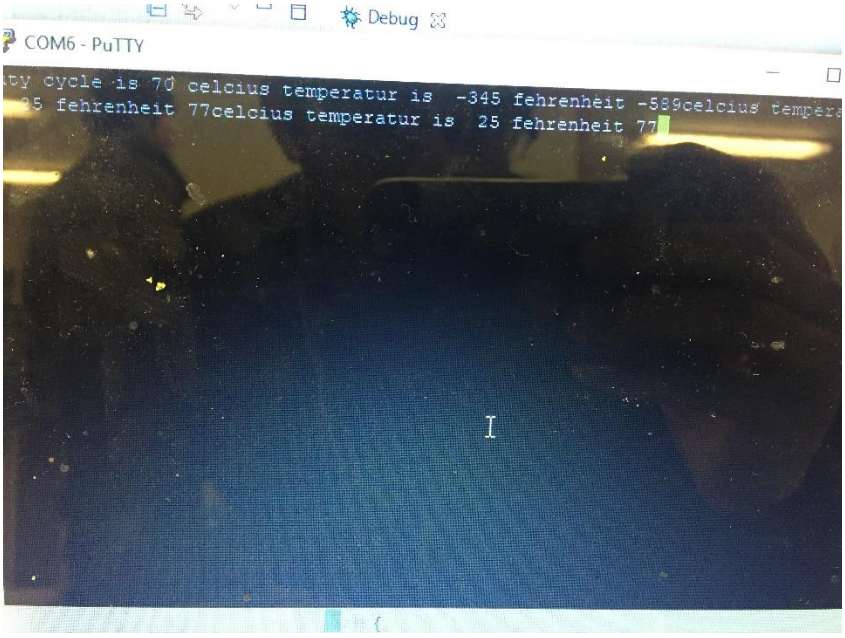

CCS Debug - Lab5/main.c - Code Composer Studio
iew Project Tools Run Scripts Window Help
Debug
COM6 - PuTTY
Variables
FPU
ITM
MPU
Console
Problems

```
Duty cycle is 70
```


rkspace_v7 - CCS Debug - Lab5/main.c - Code Composer Studio
Edit View Project Tools Run Scripts Window Help
COM6 - PuTTY

```
hjgafkakfs
```

Lab 3 Project Report



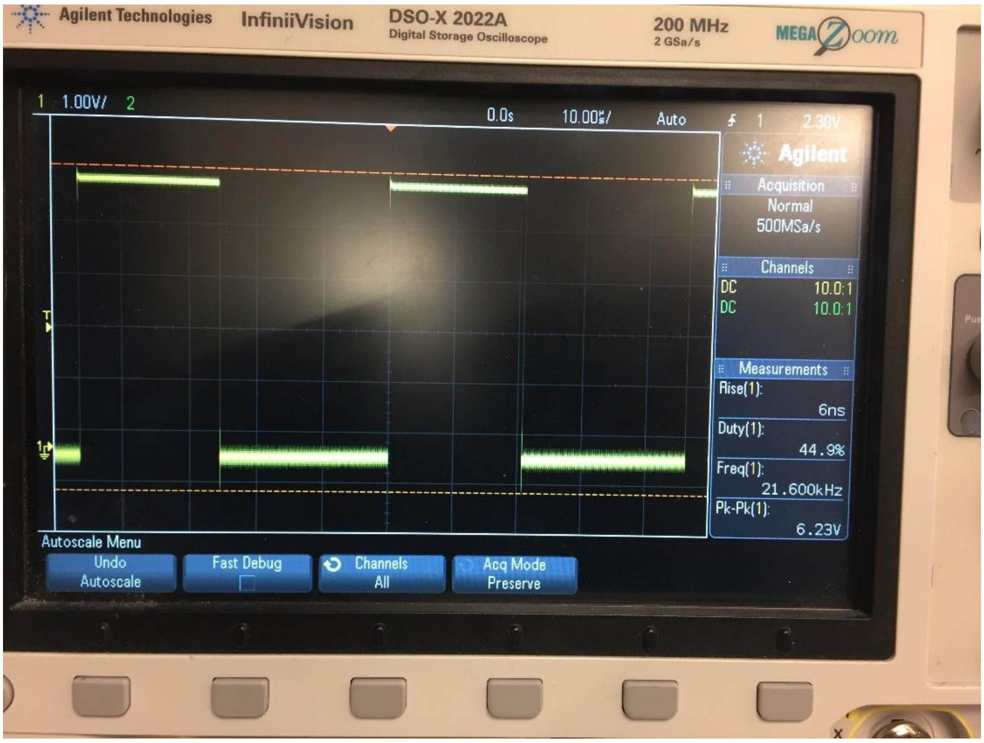
```
ty cycle is 70 celcius temperatur is  -345 fehrenheit -589celcius tempera
25 fehrenheit 77celcius temperatur is  25 fehrenheit 77
```

For Supplement Element:-

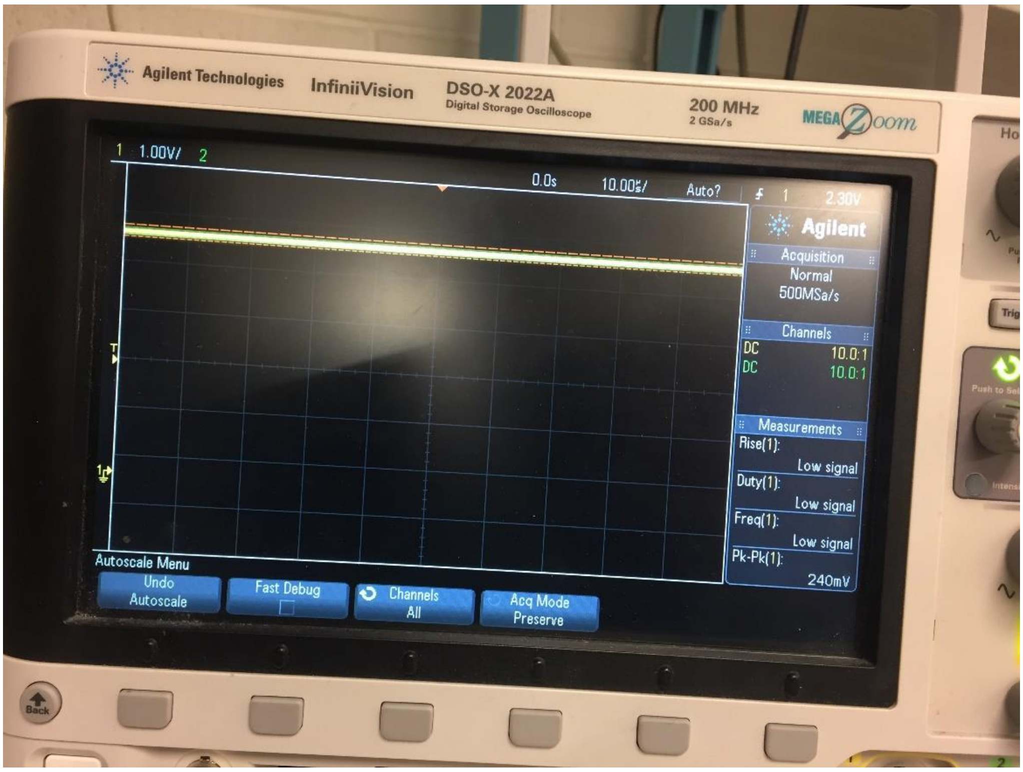
We have to use PCA. It has 5 modules and 5 modes.

1) Rising/ Falling
2) High Speed output
3) PWM
4) Watchdog mode (can work in mode 4 only)

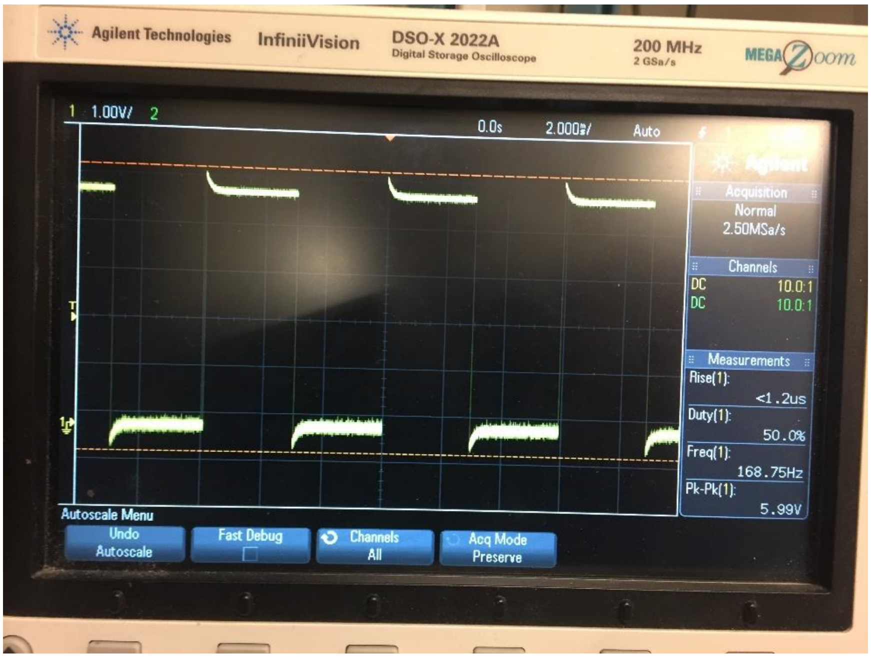
Screenshots of Duty cycle on and off . Duty cycle is ~45%(44.9%)



Lab 3 Project Report

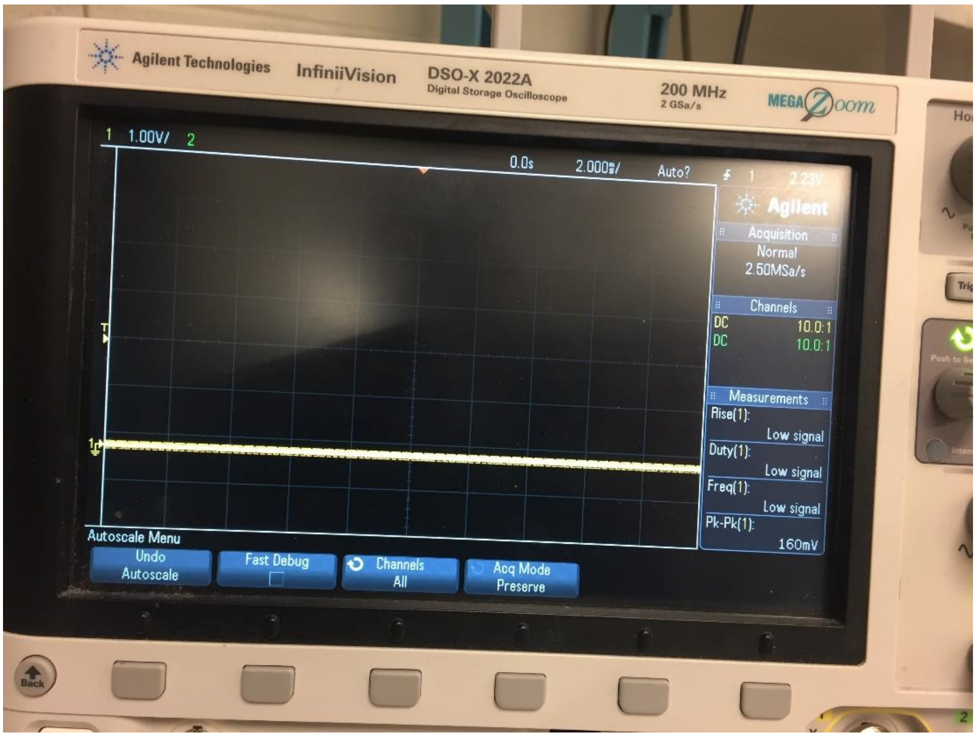


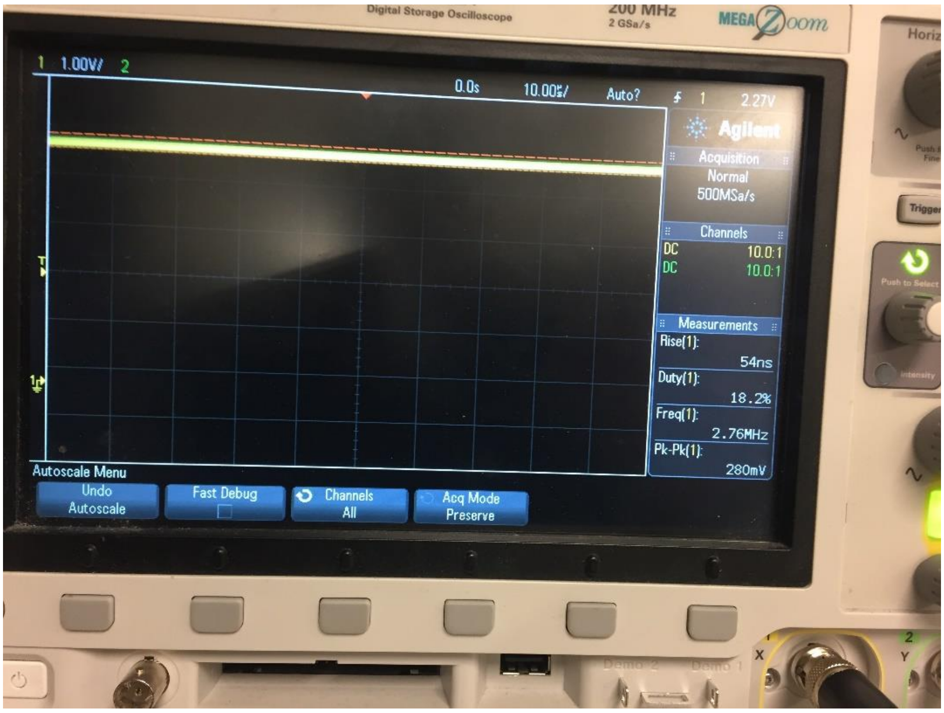
For High Speed Output :-



Lab 3 Project Report

Idle mode and power down mode (Output Checked at ALE and PSEN)



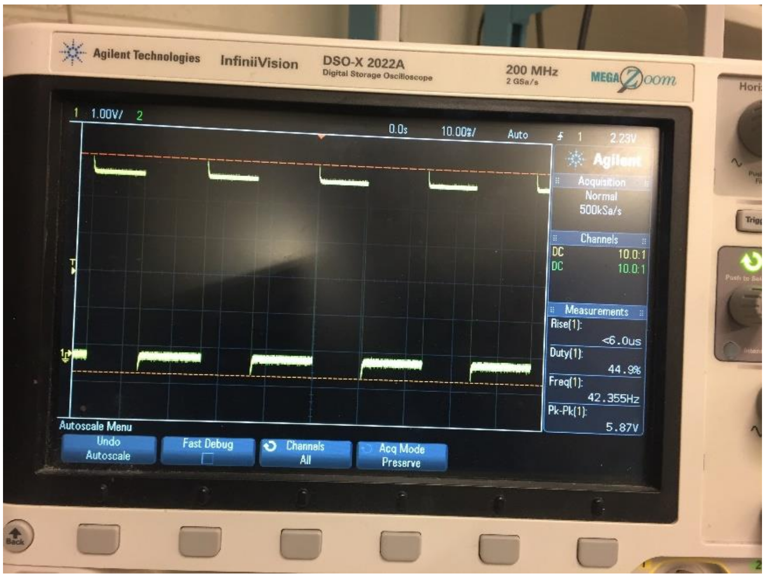


In Idle mode, Oscillator works but few of the perimeters shuts off whereas in power down mode cpu shuts off shutting the oscillator also and the MC runs on 2V.

Lab 3 Project Report

CKRL Maximum and Minimum frequency

At Minimum stage, CKRL goes to 00 value and at maximum frequency CKRL is FF.
So when it goes to value 00, there will be drastic drop in frequency in PWM mode.



In the figure above, frequency is in Hz which was in KHz when it was in Normal PWM mode.

Lab 3 Project Report

Difficulties Faced:-

I had difficulties launching SDCC 3.6.0 version with my code blocks which I was unable to solve and finally worked with 2.6.0 version of SDCC.