ACHD Final Project – Phase 3

Implementation of a 32-bit processor with assembly codes (auto clock)

Deliverables:

1. Assembly code for encryption.
2. **FPGA DEMO: https://youtu.be/FaERPXxH3Xk**

Team 11|Version 3

Byte Addressable 32 Bit NYU6463processor Processor

Team Members:

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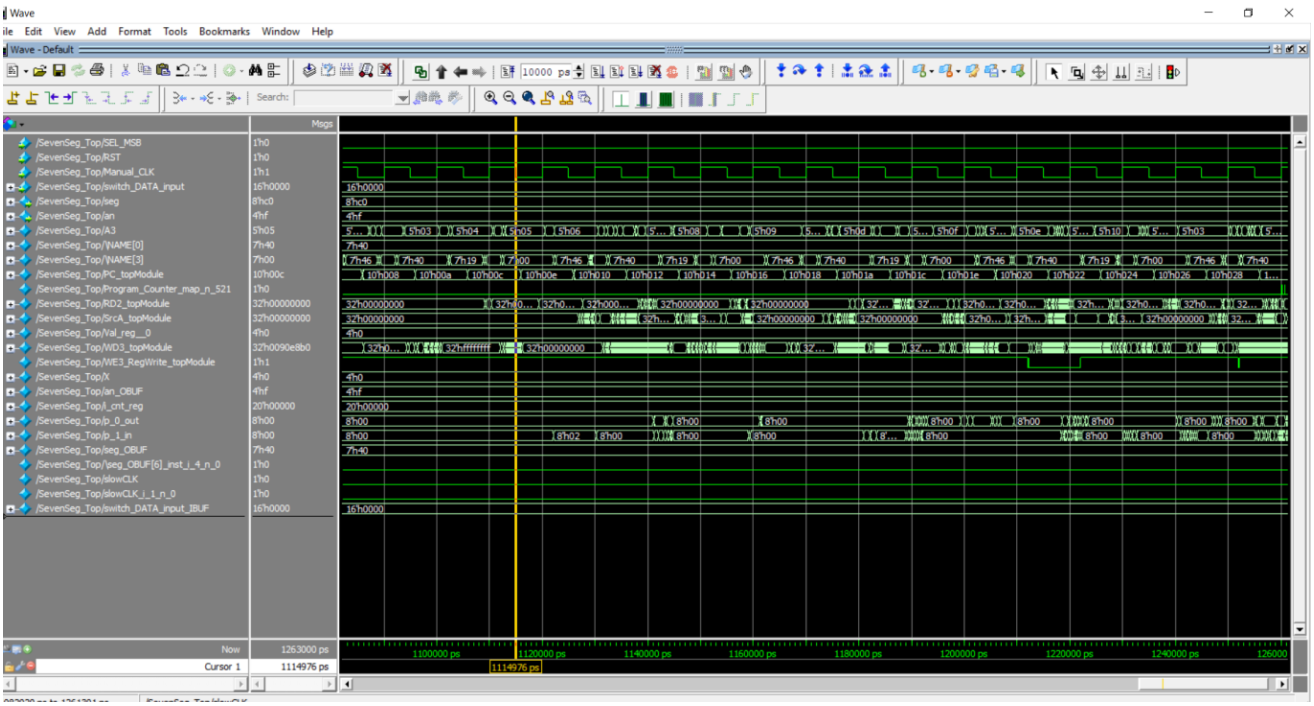
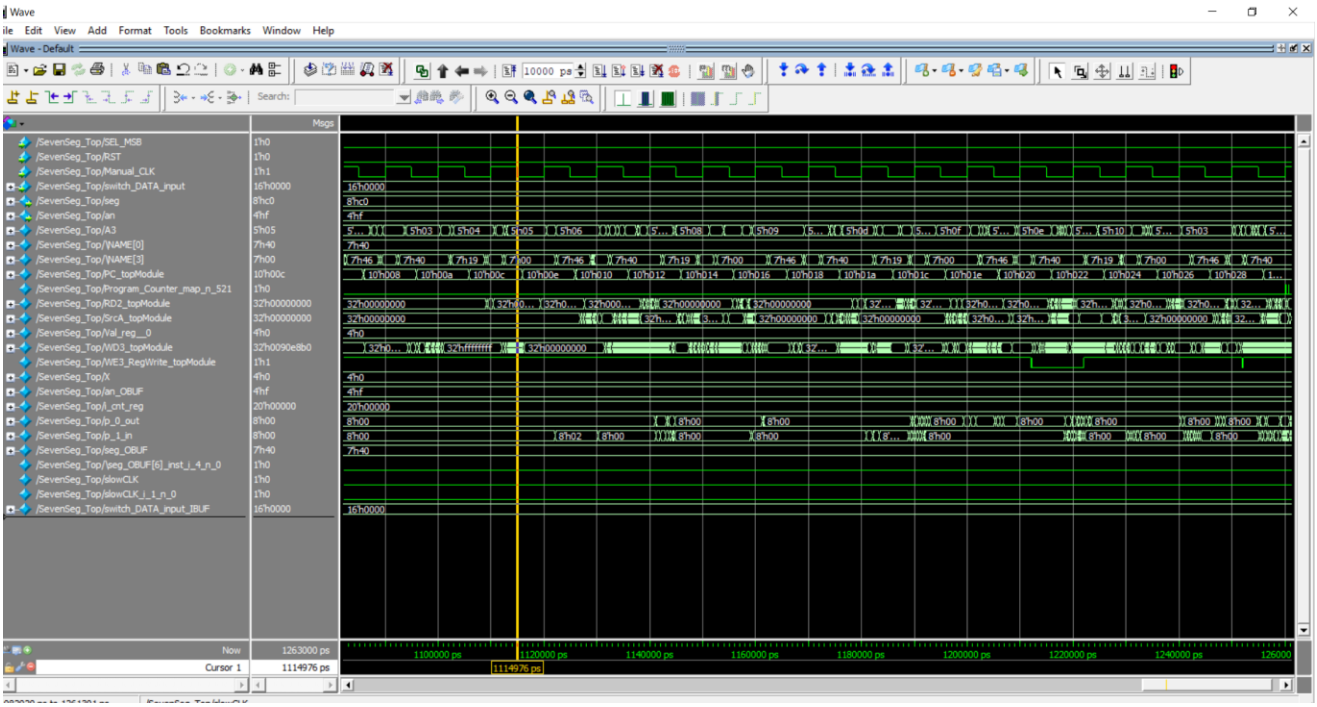
- Kalpan Mehta **KSM469**
- Rhitvik Kumawat **RK3494**

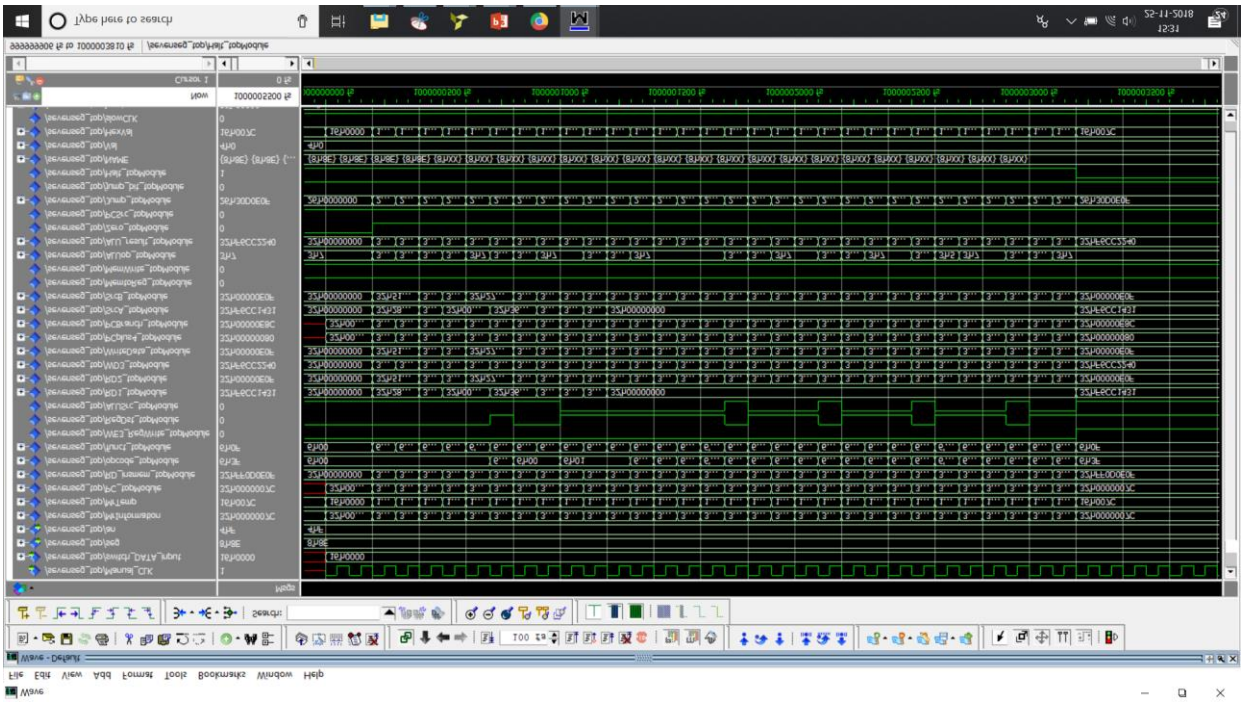
Phase III : RC5 Code Instruction explanation: please find the codes in the respective text files attached.

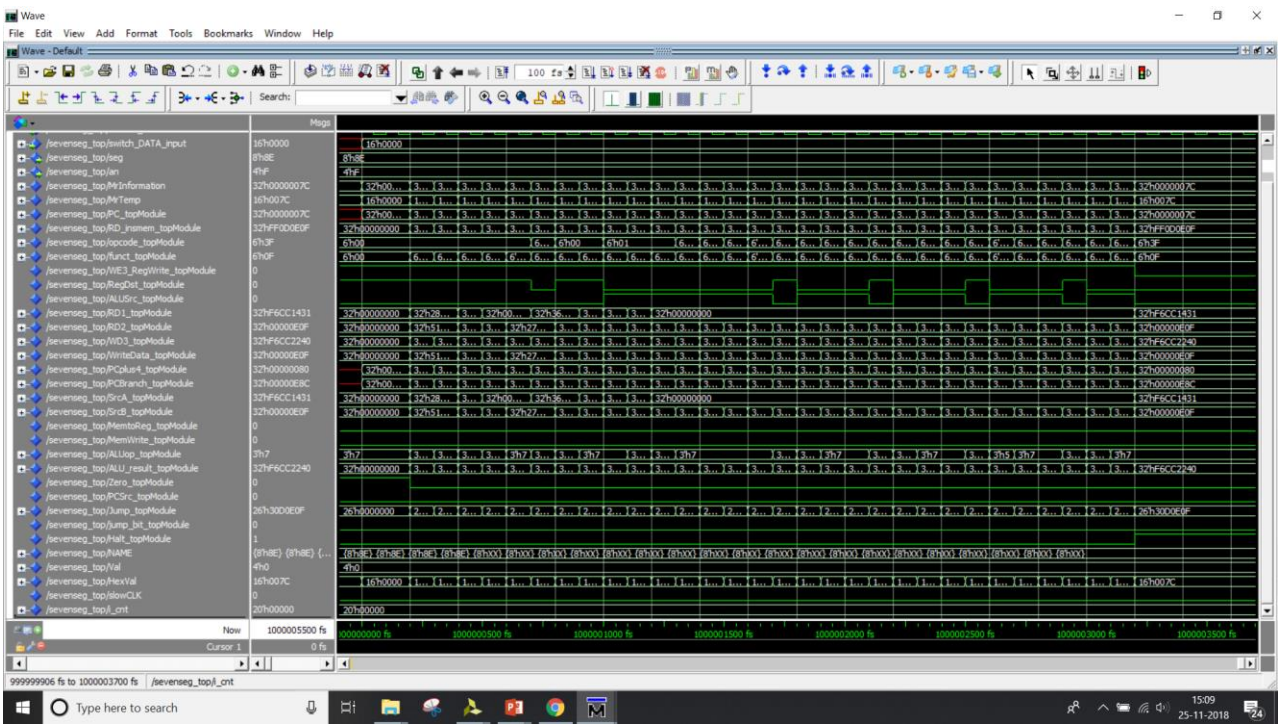
Timing Simulation

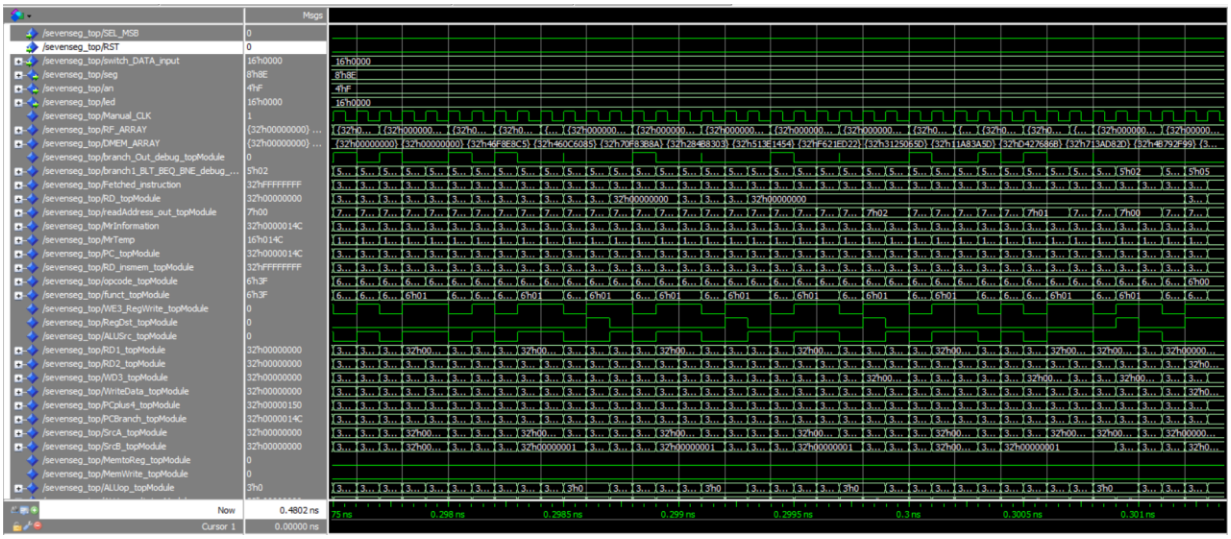


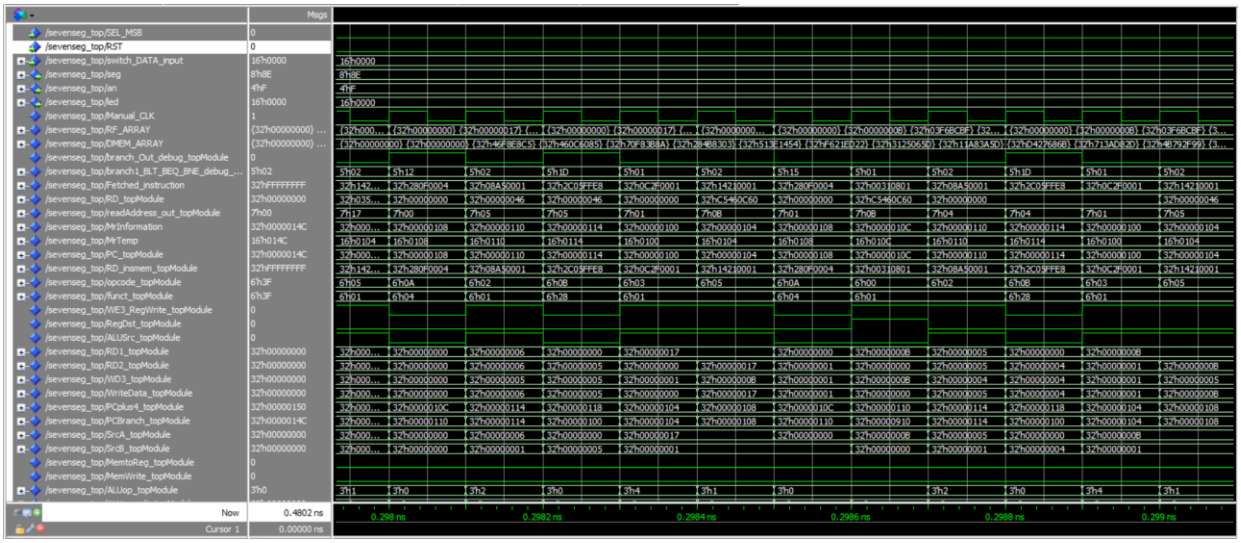


Behavioral Simulation






Msgs
/sevenseg_top/SEL_MSB
/sevenseg_top/RST
/sevenseg_top/switch_DATA_input
/sevenseg_top/seg
/sevenseg_top/an
/sevenseg_top/led
/sevenseg_top/Manual_CLK
/sevenseg_top/RF_ARRAY
/sevenseg_top/DMEM_ARRAY
/sevenseg_top/branch_Out_debug_topModule
/sevenseg_top/branch1_BLT_BEQ_BNE_debug_...
/sevenseg_top/Fetched_instruction
/sevenseg_top/RD_topModule
/sevenseg_top/readAddress_out_topModule
/sevenseg_top/MrInformation
/sevenseg_top/MrTemp
/sevenseg_top/PC_topModule
/sevenseg_top/RD_insmem_topModule
/sevenseg_top/opcode_topModule
/sevenseg_top/funct_topModule
/sevenseg_top/WE3_RegWrite_topModule
/sevenseg_top/RegDst_topModule
/sevenseg_top/ALUSrc_topModule
/sevenseg_top/RD1_topModule
/sevenseg_top/RD2_topModule
/sevenseg_top/WD3_topModule
/sevenseg_top/WriteData_topModule
/sevenseg_top/PCplus4_topModule
/sevenseg_top/PCBranch_topModule
/sevenseg_top/SrcA_topModule
/sevenseg_top/SrcB_topModule
/sevenseg_top/MemtoReg_topModule
/sevenseg_top/MemWrite_topModule
/sevenseg_top/ALUop_topModule
Now
Cursor 1
0.4802 ns
0.00000 ns
0.298 ns
0.2985 ns
0.299 ns
0.3 ns
0.3005 ns
0.301 ns


Msgs
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/sevenseg_top/led
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/sevenseg_top/DMEM_ARRAY
/sevenseg_top/branch_Out_debug_topModule
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/sevenseg_top/Fetched_instruction
/sevenseg_top/RD_topModule
/sevenseg_top/readAddress_out_topModule
/sevenseg_top/MrInformation
/sevenseg_top/MrTemp
/sevenseg_top/PC_topModule
/sevenseg_top/RD_insmem_topModule
/sevenseg_top/opcode_topModule
/sevenseg_top/funct_topModule
/sevenseg_top/WE3_RegWrite_topModule
/sevenseg_top/RegDst_topModule
/sevenseg_top/ALUSrc_topModule
/sevenseg_top/RD1_topModule
/sevenseg_top/RD2_topModule
/sevenseg_top/WD3_topModule
/sevenseg_top/WriteData_topModule
/sevenseg_top/PCplus4_topModule
/sevenseg_top/PCBranch_topModule
/sevenseg_top/SrcA_topModule
/sevenseg_top/SrcB_topModule
/sevenseg_top/MemtoReg_topModule
/sevenseg_top/MemWrite_topModule
/sevenseg_top/ALUop_topModule
Now
Cursor 1
0.4802 ns
0.00000 ns
0.298 ns
0.2982 ns
0.2984 ns
0.2986 ns
0.2988 ns
0.299 ns