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1. Matlab FFT output

Applying these 4 real inputs:

Inputs	First Input	Second Input	Third Input	Fourth Input
x0	1	0.5	1	0
x1	1	0	0	0
x2	1	0	0	0
x3	1	0	0	0
x4	1	0	0	0
x5	1	0	0	0
x6	1	0	0	0
x7	1	0	0	0
x8	1	0	0	0
x9	1	0	0	0
x10	1	0	0	1
x11	1	0	0	2
x12	1	0	0	3
x13	1	0	0	4
x14	1	0	0	5
x15	1	0	0	6
x16	1	0	0	7
x17	1	0	0	8
x18	1	0	0	9
x19	1	0	0	10
x20	1	0	0	1
x21	1	0	0	2
x22	1	0	0	3
x23	1	0	0	4
x24	1	0	0	5
x25	1	0	0	6
x26	1	0	0	7
x27	1	0	0	8
x28	1	0	0	9
x29	1	0	0	10
x30	1	0	0	1
x31	1	0	0	2

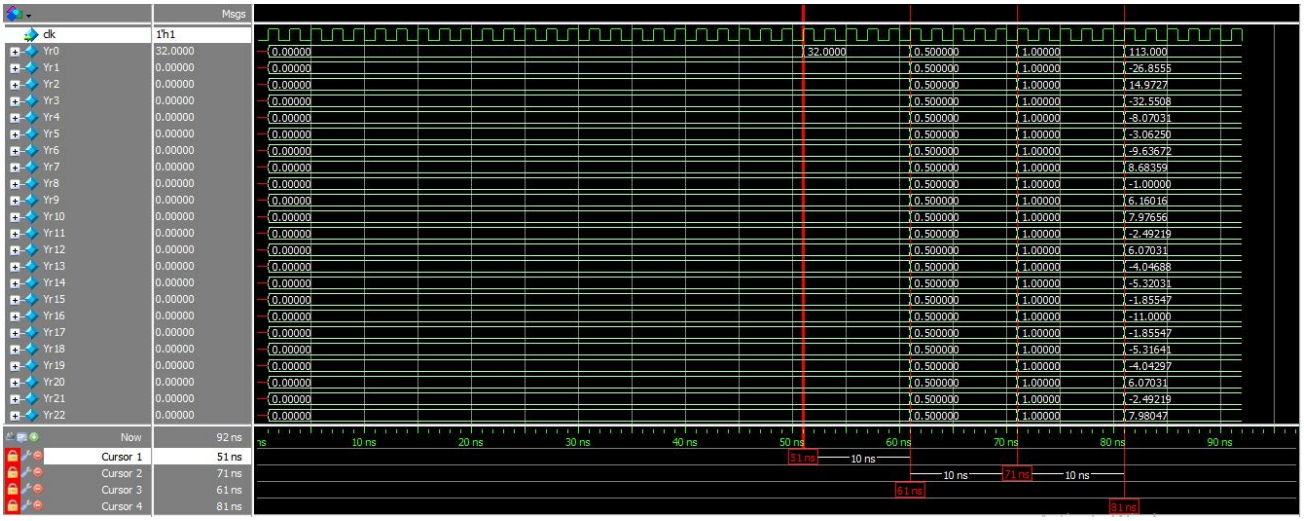
And the golden outputs as follows:

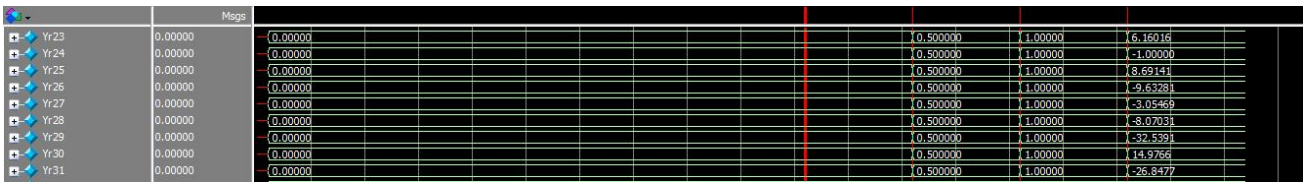
Outputs	First Output	Second Output	Third Output	Fourth Output
Yr0	32	0.5	1	113
Yr1	0	0.5	1	-26.809689957557
Yr2	0	0.5	1	14.963905508195
Yr3	0	0.5	1	-32.5136127714309
Yr4	0	0.5	1	-8.07106781186548
Yr5	0	0.5	1	-3.08941184960541
Yr6	0	0.5	1	-9.61888092069109
Yr7	0	0.5	1	8.64342248777279
Yr8	0	0.5	1	-1
Yr9	0	0.5	1	6.15241257519561
Yr10	0	0.5	1	7.96202667119871
Yr11	0	0.5	1	-2.48860952570001
Yr12	0	0.5	1	6.07106781186548
Yr13	0	0.5	1	-4.05050147699461
Yr14	0	0.5	1	-5.30705125870261
Yr15	0	0.5	1	-1.84400948168044
Yr16	0	0.5	1	-11
Yr17	0	0.5	1	-1.84400948168044
Yr18	0	0.5	1	-5.30705125870261
Yr19	0	0.5	1	-4.05050147699461
Yr20	0	0.5	1	6.07106781186548
Yr21	0	0.5	1	-2.48860952570001
Yr22	0	0.5	1	7.96202667119871
Yr23	0	0.5	1	6.15241257519561
Yr24	0	0.5	1	-1
Yr25	0	0.5	1	8.64342248777279
Yr26	0	0.5	1	-9.61888092069109
Yr27	0	0.5	1	-3.08941184960541
Yr28	0	0.5	1	-8.07106781186548
Yr29	0	0.5	1	-32.5136127714309
Yr30	0	0.5	1	14.963905508195
Yr31	0	0.5	1	-26.809689957557

Outputs	First Output	Second Output	Third Output	Fourth Outputs
Yi0	0	0	0	0
Yi1	0	0	0	46.3071751415637
Yi2	0	0	0	24.2661348172387
Yi3	0	0	0	12.2858661112101
Yi4	0	0	0	-12.2426406871193
Yi5	0	0	0	5.3822429914032
Yi6	0	0	0	-12.3302285609854
Yi7	0	0	0	-6.60812854511107
Yi8	0	0	0	2
Yi9	0	0	0	-7.16529951735346
Yi10	0	0	0	6.8413443142684
Yi11	0	0	0	2.93124438547362
Yi12	0	0	0	3.75735931288071
Yi13	0	0	0	10.0358776320572
Yi14	0	0	0	-0.562292307507477
Yi15	0	0	0	5.95101429609795
Yi16	0	0	0	0
Yi17	0	0	0	-5.95101429609795
Yi18	0	0	0	0.562292307507477
Yi19	0	0	0	-10.0358776320572
Yi20	0	0	0	-3.75735931288071
Yi21	0	0	0	-2.93124438547362
Yi22	0	0	0	-6.8413443142684
Yi23	0	0	0	7.16529951735346
Yi24	0	0	0	-2
Yi25	0	0	0	6.60812854511107
Yi26	0	0	0	12.3302285609854
Yi27	0	0	0	-5.3822429914032
Yi28	0	0	0	12.2426406871193
Yi29	0	0	0	-12.2858661112101
Yi30	0	0	0	-24.2661348172387
Yi31	0	0	0	-46.3071751415637

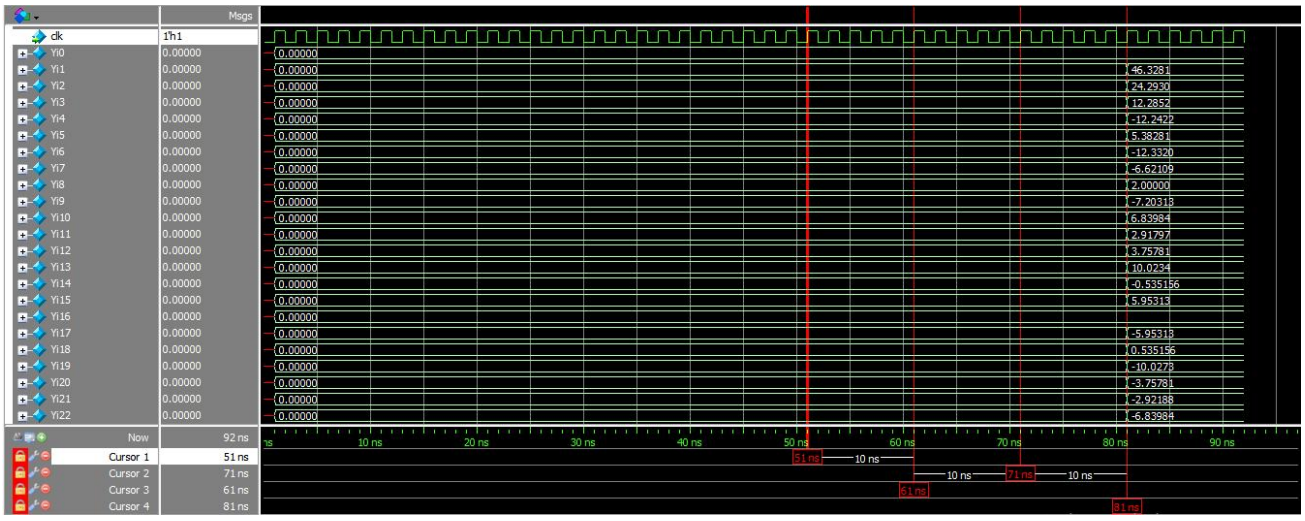
2. Wave forms

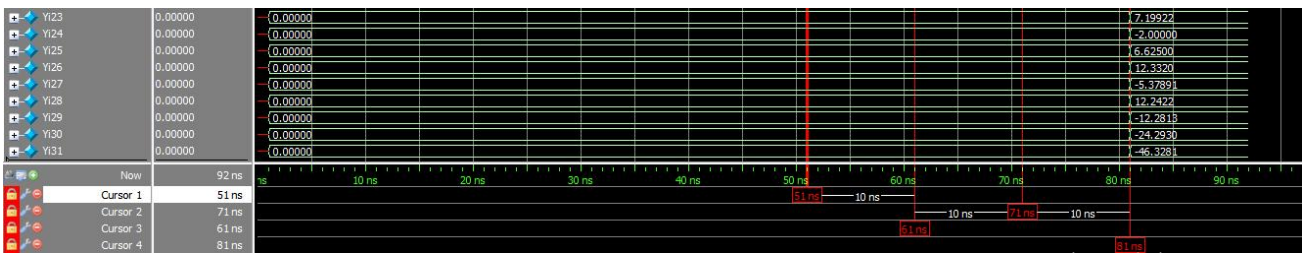
Real outputs (Yr) as follows:





Imaginary outputs (Yi) as follows:





3. QuestaSim transcript

```
# UVM_INFO U:/AYMAN/DIGITAL/1.Verification/Final Course Projects/FFT_UVM/FFT_scoreboard.sv(88) @ 82: uvm_test_top.env.sb [report_phase] At time 82: Simulation Ends and Error Count= 0, Correc
t Count= 4
#
# --- UVM Report Summary ---
#
# ** Report counts by severity
# UVM_INFO :    9
# UVM_WARNING :    0
# UVM_ERROR :    0
# UVM_FATAL :    0
# ** Report counts by id
# [Questa UVM]     2
# [RNTST]     1
# [TEST_DONE]     1
# [report_phase]     1
# [run_phase]     4
# ** Note: $finish    : C:/questasim64_2021.1/win64/../verilog_src/uvm-1.1d/src/base/uvm_root.svh(430)
#    Time: 82 ns  Iteration: 61  Instance: /top
```