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- Trojan description
  - The Trojan trigger is a comparator which gets only activated in the functional mode. The Trojan payload is a ring oscillator along a path. It is expected the path slows down when the ring oscillates.

- Trojan taxonomy
  - Insertion phase: Design
  - Abstraction level: gate level
  - Activation mechanism: Internally conditionally triggered
  - Effects: Denial of Service, Degrade Performance
  - Location: Processor
  - Physical characteristics: Functional

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```
// Trigger ---------
 NOR2X0 Trojan1 (.IN1(WX3442), .IN2(WX5974), .QN(Tj_OUT1));
 NOR2X0 Trojan2 (.IN1(WX806), .IN2(WX782), .QN(Tj_OUT2));
 NOR2X0 Trojan3 (.IN1(WX11632), .IN2(WX3102), .QN(Tj_OUT3));
 NOR2X0 Trojan4 (.IN1(WX5964), .IN2(WX3324), .QN(Tj_OUT4));
 AND4X1 Trojan1234_NOT (.IN1(Tj_OUT1), .IN2(Tj_OUT1), .IN3(Tj_OUT3), .IN4(Tj_OUT4), .Q(Tj_OUT1234));

 NOR2X0 Trojan5 (.IN1(WX8634), .IN2(WX3330), .QN(Tj_OUT5));
 NOR2X0 Trojan6 (.IN1(WX3126), .IN2(WX3110), .QN(Tj_OUT6));
 NOR2X0 Trojan7 (.IN1(WX862), .IN2(WX7227), .QN(Tj_OUT7));
 NOR2X0 Trojan8 (.IN1(WX11616), .IN2(WX10862), .QN(Tj_OUT8));
 AND4X1 Trojan5678_NOT (.IN1(Tj_OUT5), .IN2(Tj_OUT6), .IN3(Tj_OUT7), .IN4(Tj_OUT8), .Q(Tj_OUT5678));

 INVX0 INVtest_se ( .IN(test_se), .QN(test_se_NOT) );
 AND3X1 Trojan_Trigger (.IN1(Tj_OUT1234), .IN2(Tj_OUT5678), .IN3(test_se_NOT), .Q(Tj_Trigger) );
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// Payload ---------
NAND3X4 TjPayload1 ( .IN1(WX547), .IN2(Tj_Trigger), .IN3(Stage4), .QN(Stage1_1));
INVX8 TjPayload2 ( .IN(Stage1_1), .QN(Stage1_2) );  INVX8 TjPayload3 ( .IN(Stage1_2), .QN(Stage1_3) );
INVX8 TjPayload4 ( .IN(Stage1_3), .QN(Stage1_4) );  INVX8 TjPayload5 ( .IN(Stage1_4), .QN(Stage1) );

MUX21X2 TjPayload6 ( .IN1(WX544), .IN2(Stage1), .S(TjTrigger), .Q(Stage2_i) );
INVX8 TjPayload7 ( .IN(Stage2_i), .QN(Stage2_7) );  INVX8 TjPayload8 ( .IN(Stage2_7), .QN(Stage2_8) );
INVX8 TjPayload9 ( .IN(Stage2_8), .QN(Stage2_9) );  INVX8 TjPayload10 ( .IN(Stage2_9), .QN(Stage2_10) );
INVX8 TjPayload11 ( .IN(Stage2_10), .QN(Stage2) );

MUX21X2 TjPayload12 ( .IN1(WX706), .IN2(Stage2), .S(TjTrigger), .Q(Stage3_i) );
INVX8 TjPayload13 ( .IN(Stage3_i), .QN(Stage3_12) );  INVX8 TjPayload14 ( .IN(Stage3_12), .QN(Stage3_13) );
INVX8 TjPayload15 ( .IN(Stage3_13), .QN(Stage3_14) );  INVX8 TjPayload16 ( .IN(Stage3_14), .QN(Stage3_15) );
INVX8 TjPayload17 ( .IN(Stage3_15), .QN(Stage3_16) );

MUX21X2 TjPayload18 ( .IN1(n3467), .IN2(Stage3), .S(TjTrigger), .Q(Stage4_i) );
INVX8 TjPayload19 ( .IN(Stage4_i), .QN(Stage4_17) );  INVX8 TjPayload20 ( .IN(Stage4_17), .QN(Stage4_18) );
INVX8 TjPayload21 ( .IN(Stage4_18), .QN(Stage4_19) );  INVX8 TjPayload22 ( .IN(Stage4_19), .QN(Stage4_20) );
INVX8 TjPayload23 ( .IN(Stage4_20), .QN(Stage4_21) );  INVX8 TjPayload24 ( .IN(Stage4_21), .QN(Stage4) );
```

Please send your concerns/questions to

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