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[K
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DAFTAR ISI

<div style="text-align: left;">

1. Jurnal</div>

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2. Alat dan Bahan</div>

<div style="text-align: left;">

3. Rangkaian
Simulasi</div>

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4. Prinsip Kerja
Rangkaian</div>

<div style="text-align: left;">

5. Video Rangkaian</div>

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6. Analisa</div>

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7. Link Download

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[Kembali]<div><span style="color:
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2.
Alat dan Bahan

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Switch (SW-SPDT)</div><div class="separator" style="border: 0px; box-sizing:

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Switch</div><div class="separator" style="border: 0px; box-sizing: border-box; clear:

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Logicprobe</div><div class="separator" style="border: 0px; box-sizing: border-box;
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3. Rangkaian Simulasi

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</div><b style="color: #ffa400; font-family: helvetica; font-size: x-large;">4. Prinsip Kerja Rangkaian

[Kembali]</div><div><b style="color: #ffa400; font-family: helvetica; font-size: x-large;">
</div><div><b style="color: #ffa400;">Asynchronous counter (counter asynchronous) adalah counter yang sinyal clocknya hanya diberikan pada trigger flip flop pertama dimana untuk input trigger flip flop selanjutnya dipengaruhi oleh output flip flop sebelumnya. Dalam counter asynchronous, perubahan nilai output terjadi ketika ada perubahan pada input tertentu. Misalnya, dalam counter 4-bit asynchronous, flip-flop pertama mengubah nilainya ketika clock berubah, flip-flop kedua mengubah nilainya ketika flip-flop pertama berubah, flip-flop ketiga mengubah nilainya ketika flip-flop kedua berubah, dan seterusnya.</div><div>
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style="margin-left: 1em; margin-right: 1em; text-align: center;"></div><div>
</div><div style="text-align: justify;">Berdasarkan gambar diatas terlihat bahwa sinyal clock hanya diberikan pada kaki input CLK flip flop pertama. Untuk kaki JK flip flop inputnya dihubungkan menjadi satu (atau menjadi T Flip Flop) dimana nilai J dan K berlogika 1 sehingga outputnya akan bersifat toggle dimana JK Flip Flop akan mentoggle output ketika kaki CLK diberi input dari 1 ke 0 dikarenakan kaki CLK bersifat fall time. Sedangkan untuk kaki S dan R diberi input high sehingga kaki S dan R tidak aktif dikarenakan kaki S dan R bersifat aktif low. Terlihat bahwa pada gambar diatas, input trigger pada flip flop selanjutnya akan dipengaruhi oleh output Q pada flip flop sebelumnya. Hal ini membuat flip flop akan mengcounter up outputnya sedangkan jika kaki trigger flip flop selanjutnya dihubungkan dengan Q' dari flip flop sebelumnya maka output akan bersifat counter down.</div><div style="text-align: justify;">
</div></div></div><div><div><div><b style="color: #ffa400; font-family: helvetica; font-size: x-large;">5. Video Rangkaian
[Kembali]</div><div><b style="color: #ffa400; font-family: helvetica; font-size: x-large;">
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</div><div><b style="color: #ffa400; font-family: helvetica; font-size: x-large;"><div class="separator" style="clear: both; text-align: center;"><iframe allowfullscreen="" class="BLOG_video_class" height="266" src="https://www.youtube.com/embed/JUxFvJd6jwc" width="320" youtube-src-id="JUxFvJd6jwc"></iframe></div><div class="separator" style="clear: both; text-align: center;">
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</div><b style="font-family: helvetica; font-size: x-large;">6. Analisa
[Kembali]</div><div><b style="font-family: helvetica; font-size: x-large;">
</div><div><div style="text-align: justify;"><b style="background-color: black;">1. Apa perbedaan dari IC 74LS90 dengan 7493? Jelaskan berdasarkan pinout dan kegunaan setiap pinoutnya</div><div style="text-align: justify;">
</div><div style="text-align: justify;">Jawab:</div><div style="text-align: justify;">
</div><div style="text-align: justify;">Perbedaan antara IC 74LS90 dan 7493 berdasarkan pinout dan kegunaanya

yaitu:

a. IC 74LS90

- Input terdiri dari 4 pinout yaitu R0(1), R0(2), R9(1), dan R9(1)

- R0 (reset 0) berfungsi untuk mereset output menjadi 0 ketika diberikan logika high pada kedua pin RO yaitu R0(1) dan R0(2)

- R9 (reset 9) berfungsi sebagai mengreset output menjadi 9 (1001) Ketika kedua pin R9 diberi logika high.

- Output terdiri dari Q1, Q2, Q3, dan Q4 dimana berfungsi sebagai output penghitung dalam bentuk decimal (BCD).

- Ketika salah satu R0 dan R9 diberikan input low maka akan terjadi counting dari 0000 - 1001 (decimal)

b. IC 7493

- Input terdiri 2 pinout yaitu R0(1) dan R0(2)

- R0 (reset 0) berfungsi untuk mereset output Ketika kedua kaki R0 diberi logika 1.

- Ketika salah satu pin R0 diberi logika low maka ic 7493 akan mencounter dari 0000-1111 (hexadecimal).

- Output terdiri dari QA, QB, QC dan QD dimana berfungsi sebagai output perhitung dalam bentuk biner

2. Analisa sinyal output yang dikeluarkan JK flip-flop kedua dan ketiga ? kenapa flip-flop terakhir disebut MSB?

Jawab:

Berdasarkan konsep asynchronous counter dimana sinyal clock hanya diberikan pada flip-flop pertama dan kemudian input selanjutnya dipengaruhi oleh output flip-flop sebelumnya sehingga JK flip flop 2 akan mengubah outputnya berdasarkan JK flip-flop 1. Flip-flop 2 akan mentogglekan outputnya ketika JK Flip Flop pertama mentrigger CLK JK flip flop 2 dari 1 ke 0 dikarenakan kaki clock merupakan fall time sehingga dapat disimpulkan input JK flip-flop 2 dipengaruhi oleh output JK flip-flop 1. Begitu pula JK flip-flop 3 terhadap JK flip flop 2.

Flip-flop terakhir disebut MSB (Must significant

bit) karena dalam urutan biner, bit paling berpengaruh besar berada pada posisi depan sehingga jika counter 4-bit (4 flip-flop) maka flip-flop ke-4 akan menjadi MSB.

7. Link Download

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- Download Video Simulasi https://drive.google.com/uc?export=download&id=1E3hJBx6YSCUtHk9MaPisp_dR0lY4g814 [\[klik disini\]](#)
- Download Datasheet IC 72LS112 (JK Flip Flop) <https://drive.google.com/uc?export=download&id=1bdcM6Pb3EKRzd9NIhnB3Ec9gRfXN0mpp> [\[klik disini\]](#)