## I. ZH 8. feladat : 3 bites szinkron sorrendi hálózat tervezése

**Feladat**

Tervezzen 3 bites szinkron sorrendi hálózatot aszinkron kezdőérték beállítással, amely a következő jellemzőkkel rendelkezik:

* Bejárandó állapotok: RES→2, 4, 5, 6, 7, 0 és újra 4
* Felhasználandó flip-flop-ok: D,T,JK
* Az engedélyező jel magas szinten aktív

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | n. állapot | | | n+1. állapot | | | Flip-flop-ok  bemenetei | | | |
| **S.** | **E** | **QC** | **QB** | **QA** | **QC** | **QB** | **QA** | **DC** | **TB** | **JA** | **KA** |
| 0. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | d |
| 1. | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | d | 0 |
| 2. | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | d |
| 3. | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | d | 0 |
| 4. | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | d |
| 5. | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | d | 0 |
| 6. | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | d |
| 7. | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | d | 0 |
| 8. | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | d |
| 9. | 1 | 0 | 0 | 1 | X | X | X | d | d | d | d |
| 10. | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | d |
| 11. | 1 | 0 | 1 | 1 | X | X | X | d | d | d | d |
| 12. | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | d |
| 13. | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | d | 1 |
| 14. | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | d |
| 15. | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | d | 1 |

|  |  |  |
| --- | --- | --- |
| **Qn** | **Qn+1** | **D** |
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 0 |
| 1 | 1 | 1 |

**Működési tábla felírása (szinkron kezdőérték beállítással):**

|  |  |  |
| --- | --- | --- |
| **Qn** | **Qn+1** | **T** |
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 0 |

|  |  |  |  |
| --- | --- | --- | --- |
| **Qn** | **Qn+1** | **J** | **K** |
| 0 | 0 | 0 | d |
| 0 | 1 | 1 | d |
| 1 | 0 | d | 1 |
| 1 | 1 | d | 0 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | **QB** | |  |  |  |
|  | **QA** | |  |  |  |  |
|  |  |  |  |  |  |  |
| **0** | **1** | **3** | 2 |  |  |  |
| **4**  **1** | **5**  **1** | **7**  **1** | **6**  **1** |  | **QC** |  |
| **12**  **1** | **13**  **1** | **15** | **14**  **1** |  | **E** |
| **8**  **1** | **9**  **X** | **11 X** | **10**  **1** |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | **QB** | |  |  |  |
|  | **QA** | |  |  |  |  |
|  |  |  |  |  |  |  |
| **0** | **1** | **3** | 2 |  |  |  |
| **4** | **5** | **7** | **6** |  | **QC** |  |
| **12** | **13**  **1** | **15**  **1** | **14** |  | **E** |
| **8** | **9**  **X** | **11 X** | **10**  **1** |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | **QB** | |  |  |  |
|  | **QA** | |  |  |  |  |
|  |  |  |  |  |  |  |
| **0** | **1**  **d** | **3**  **d** | 2 |  |  |  |
| **4** | **5**  **d** | **7**  **d** | **6** |  | **QC** |  |
| **12**  **1** | **13**  **d** | **15**  **d** | **14**  **1** |  | **E** |
| **8** | **9**  **d** | **11 d** | **10** |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | **QB** | |  |  |  |
|  | **QA** | |  |  |  |  |
|  |  |  |  |  |  |  |
| **0**  **d** | **1** | **3** | 2  **d** |  |  |  |
| **4**  **d** | **5** | **7** | **6**  **d** |  | **QC** |  |
| **12**  **d** | **13**  **1** | **15**  **1** | **14**  **d** |  | **E** |
| **8**  **d** | **9**  **d** | **11 d** | **10**  **d** |  |  |

**Kapcsolási rajz**

A képen diagram, Tervrajz, Műszaki rajz, sematikus rajz látható

Automatikusan generált leírás