

DC01: 6 Bit Binary Decoder

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Tags: decoders, binary

Features

- Constant time decoding. 14gt latency.
- Slim profile. 4 blocks wide.
- 6gt throughput.
- QC based logic.

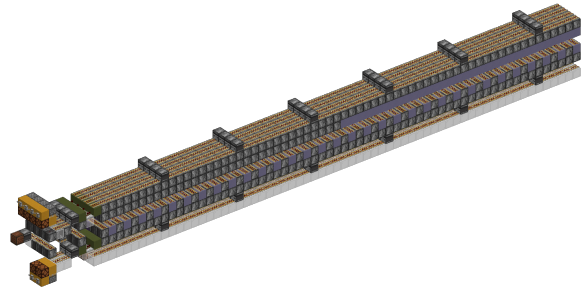


Figure 1: 6 Bit Binary Decoder

Applications

- Decoding binary signals for use in external bulk systems

General Description

The DC01 decoder takes six bits and outputs a pulse at one of 64 slices corresponding to the code.

Device Specifications

Table 1: Inputs

| Name | Range | Description |
|----------|-------|-------------------------|
| Bits 1-6 | 0-1 | Binary input |
| Execute | Pulse | Clock signal of device. |

Table 2: Outputs

| Name | Range | Description |
|---------------|-------|--|
| Mapped signal | Pulse | Outputs to one of 64 slices corresponding to input code. |

Table 3: Device Specifications

| Parameter | Min. | Typ. | Max. | Unit | Conditions |
|------------|-------------|--------|------|--------|--|
| Throughput | 6 | 8 | - | gt | Normal Usage |
| Latency | 14 | - | - | gt | Input to Output |
| Active Lag | +4.0 | 4.5 | +5.0 | ms | At Hopperspeed. Ryzen 5 3600, 2GB RAM. MC 1.18.1 with Lithium. |
| MC Version | 1.16 | 1.17.1 | - | MCV | Latest version at time of writing: 1.19.2 |
| Dimensions | 73 x 10 x 4 | | | Blocks | |

Testing Data

Table 4: Executed Tests

| Test | Result |
|-----------------|--|
| Code test | Device was able to decode all possible codes successfully. |
| Throughput test | Device was able to decode at 6gt-8gt throughput. |

Download Information

Table 5: Download Information

| Identifier | MC | File | Description |
|------------|--------|---|-----------------------|
| DC01 | 1.17.1 | DC01_6bit_decoder.litematic | Litematic of decoder. |