

# DS01: Streamable Bit RAM

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## Features

- Constant time writes to individually addressable bits.
- RAM contents can be streamed at a certain rate.
- Matrix decoding addresses memory modules individually to reduce lag.

## Applications

- Storing boolean flags for use in streamed logic.
- Reducing unnecessary bulk calls in restock systems.

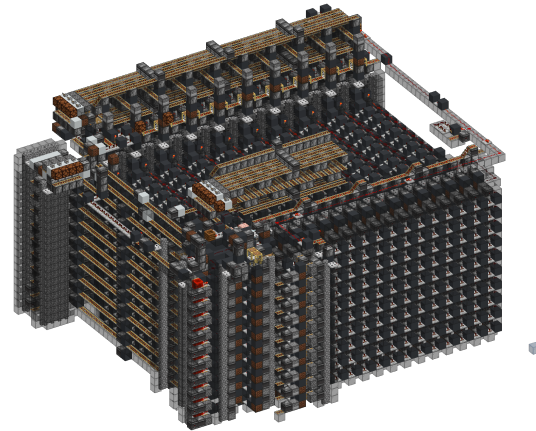


Figure 1: 1600 Bit Streamable RAM

## General Description

The DS01 is a RAM module that stores 1600 bits of data in locked repeaters. Each bit is addressable through three 4-bit inputs. It is able to stream all of its stored data such that one bit is outputted per level every 4gt-8gt.

## Device Specifications

The specifications below are for the 1600 bit variant.

**Table 1: Inputs**

Name	Range	Description
Binary Code 1	0-9	First code indicating horizontal section.
Binary Code 2	0-9	Second code indicating vertical position.
Binary Code 3	0-15	Third code indicating repeater location within storage module.
Bit Value	0-1	Indicates value to write to bit
Write bit	Pulse	Writes to a bit
Stream values	Pulse	Streams values as pulsed signals.

**Table 2: Outputs**

Name	Range	Description
Streamed values	Pulse	4-8gt pulses.

**Table 3: Device Specifications**

Parameter	Min.	Typ.	Max.	Unit	Conditions
Write Throughput	120	-	-	gt	Normal Usage
Output Throughput Per Level	4	-	8	gt	
Write Active Lag	+0.2	+0.5	+1.0	ms	Ryzen 5 3600, 2GB RAM. MC 1.18.1 with Lithium.
Stream Active Lag	+1	+3	+5	ms	
MC Version	1.16	1.17.1	-	MCV	Latest version at time of writing: 1.19.2
Dimensions	50 x 32 x 50			Blocks	

## Testing Data

Table 4: Executed Tests

Test	Result
Write test	Device was able to write to all bits successfully.
Stream test	Device was able to stream all bits successfully.

## Download Information

Table 5: Download Information

Identifier	MC	File	Description
DS011600	1.17.1	<a href="#">DS011600_1600_bit_RAM.p1.litematic</a>	Litematic of RAM with 1600 bits. Inventories not included.
DS01600	1.18.2	<a href="#">DS01600_600_bit_ram.litematic</a>	Litematic of RAM with 600 bits. Wired slightly better. 36x32x36 blocks. Inventories not included.

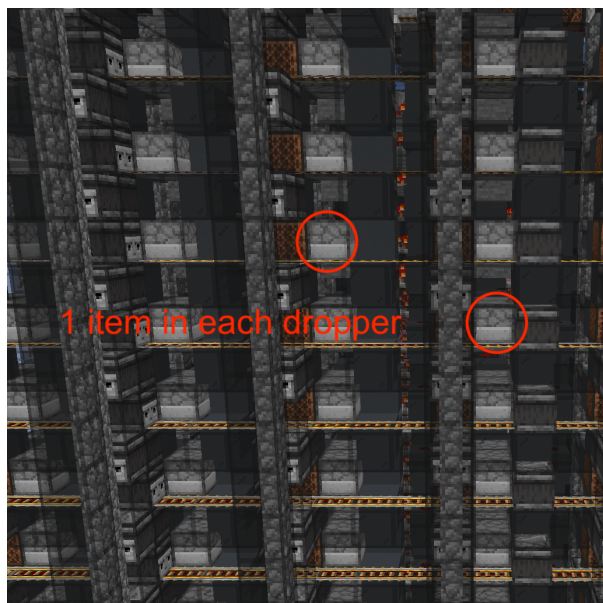


Figure 2: Inventories setup guide