Soontech Annals
DS01: Streamable Bit RAM

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Features

- Constant time writes to individually addressible 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.

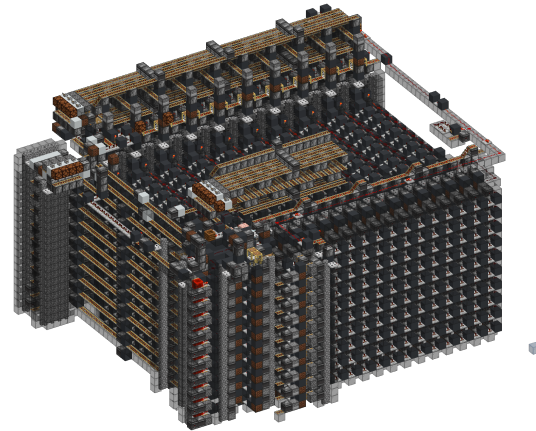- Reducing unecessary bulk calls in restock systems.

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	Normal Usage
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	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	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

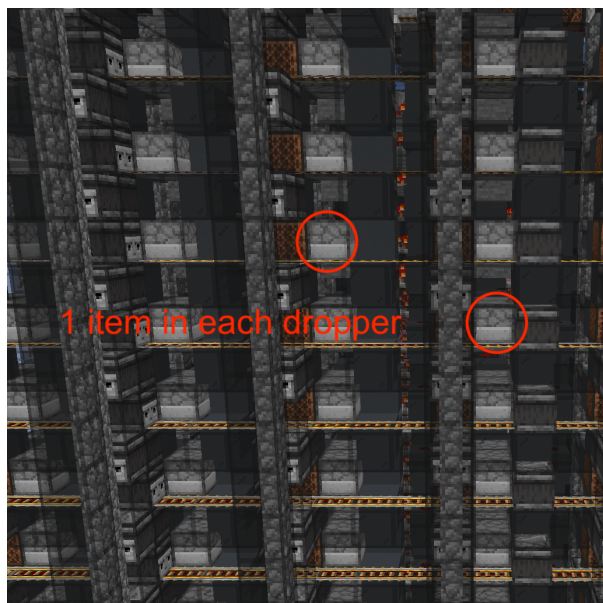| Identifier	MC	File	Description
DS011600	1.17.1	DS011600_1600_bit_RAM_p1.litematic	Litematic of RAM with 1600 bits. Inventories not included.
DS01600	1.18.2	DS01600_600_bit_ram.litematic	Litematic of RAM with 600 bits. Wired slightly better. 36x32x36 blocks. Inventories not included.

Figure 2: Inventories setup guide