

Rudolf the Red Nose Reindeer from the Commodore "Christmas Album" as discussed in this video: <https://www.youtube.com/watch?v=TcRYoLzC-Is>

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>C:4157 aa 00 b0 01 19 02 cd 03 04 04 41 05 23 06 9a 07 .....A.#... >C:4517 23 40 00 06 9a 0b 20 0c 00 12 20 13 00 40 00 00 #@.....@.
>C:4167 92 08 08 09 00 0a 00 0b 21 0c 23 0d 79 0e d8 0f .....!#.y... >C:4527 b0 01 19 04 41 05 23 07 92 08 08 0b 21 0c 23 40 .....A.#.....!#@
>C:4177 0c 10 00 11 00 12 20 13 00 14 79 15 04 16 bc 17 .....y... >C:4537 00 00 d6 01 1c 06 9f 0b 20 0c 00 40 00 04 00 05 .....@.
>C:4187 b6 18 1f 40 00 00 d6 01 1c 06 9f 0b 20 0c 00 40 .....@.....@. >C:4547 00 06 9a 07 cd 08 0a 0b 21 0c 23 12 21 13 20 0c .....!#.y...
>C:4197 00 04 40 05 00 06 9a 07 cd 08 0a 0b 21 0c 23 12 .....@.....!#. >C:4557 00 00 b0 01 19 04 41 05 23 0b 20 0c 00 00 00 00 .....A.#...
>C:41a7 21 13 23 40 00 00 b0 01 19 04 41 05 23 0b 20 0c .....!#@.....A.#... >C:4567 00 40 00 00 9a 01 15 06 9f 07 6c 08 06 0b 21 0c .....@.....l...!
>C:41b7 00 12 20 13 00 40 00 00 9a 01 15 06 9f 07 6c 08 .....@.....l...! >C:4577 23 40 00 04 40 05 00 06 9a 0b 20 0c 00 40 00 00 #@.....@.
>C:41c7 06 0b 21 0c 23 40 00 04 40 05 00 06 9a 0b 20 0c .....!#@.....@. >C:4587 4a 01 22 04 41 05 23 06 9f 07 cd 08 0a 0b 21 0c .....J".A.#.....!
>C:41d7 00 40 00 00 4a 01 22 04 41 05 23 06 9f 07 cd 08 .....@.....J".A.#.....! >C:4597 23 12 21 13 23 40 00 04 40 05 00 06 9a 0b 20 0c .....!#@.....@.
>C:41e7 0a 0b 21 0c 23 12 21 13 23 40 00 04 40 05 00 06 .....!#@.....@. >C:45a7 00 12 20 13 00 40 00 00 d6 01 1c 04 41 05 23 06 .....!#@.....@.
>C:41f7 9a 0b 20 0c 00 12 20 13 00 40 00 00 d6 01 1c 04 .....@.....@. >C:45b7 9f 07 92 08 08 0b 21 0c 23 40 00 04 .....!#@.....@.
>C:4207 41 05 23 06 9f 07 92 08 08 0b 21 0c 23 40 00 04 .....!#@.....@. >C:45c7 9a 0b 20 0c 00 40 00 00 b0 01 19 04 41 05 23 06 .....!#@.....@.
>C:4217 40 05 00 06 9a 0b 20 0c 00 40 00 00 b0 01 19 04 .....@.....@. >C:45d7 9f 07 cd 08 0a 0b 21 0c 23 12 21 13 23 40 00 04 .....!#@.....@.
>C:4227 41 05 23 06 9f 07 cd 08 0a 0b 21 0c 23 12 21 13 .....@.....@. >C:45e7 40 05 00 0b 20 0c 00 12 20 13 00 40 00 00 00 07 cd 08 .....@.....@.
>C:4237 23 40 00 04 40 05 00 0b 20 0c 00 12 20 13 00 40 .....@.....@. >C:45f7 06 0b 21 0c 23 40 00 0b 20 0c 00 40 00 00 00 07 cd 08 .....@.....@.
>C:4247 00 07 6c 08 06 0b 21 0c 23 40 00 0b 20 0c 00 40 .....@.....@. >C:4607 0a 0b 21 0c 23 12 21 13 23 40 00 06 9a 0b 20 0c .....!#@.....@.
>C:4257 00 07 cd 08 0a 0b 21 0c 23 12 21 13 23 40 00 06 .....@.....@. >C:4617 00 12 20 13 00 40 00 04 41 05 23 07 92 08 08 0b .....!#@.....@.
>C:4267 9a 0b 20 0c 00 12 20 13 00 40 00 04 41 05 23 07 .....@.....@. >C:4627 21 0c 23 40 00 00 d6 01 1c 0b 20 0c 00 40 00 00 .....!#@.....@.
>C:4277 92 08 08 0b 21 0c 23 40 00 06 01 1c 0b 20 0c .....@.....@. >C:4637 00 12 19 07 cd 08 0a 0b 21 0c 23 12 21 13 23 40 00 04 .....!#@.....@.
>C:4287 00 40 00 00 b0 01 19 07 cd 08 0a 0b 21 0c 23 12 .....@.....@. >C:4647 00 00 d6 01 1c 0b 20 0c 00 12 20 13 00 40 00 00 .....@.....@.
>C:4297 21 13 23 40 00 00 d6 01 1c 0b 20 0c 00 12 20 13 .....@.....@. >C:4657 b0 01 19 06 9f 07 6c 08 06 0b 21 0c 23 40 00 04 .....!#@.....@.
>C:42a7 00 40 00 00 b0 01 19 06 9f 07 6c 08 06 0b 21 0c .....@.....@. >C:4667 40 05 00 06 9a 0b 20 0c 00 40 00 00 4a 01 22 04 .....@.....@.
>C:42b7 23 40 00 04 40 05 00 06 9a 0b 20 0c 00 40 00 00 .....@.....@. >C:4677 41 05 23 06 9f 07 cd 08 0a 0b 21 0c 23 12 21 13 .....!#@.....@.
>C:42c7 4a 01 22 04 41 05 23 06 9f 07 cd 08 0a 0b 21 0c .....@.....@. >C:4687 23 40 00 04 40 05 00 06 9a 0b 20 0c 00 12 20 13 .....!#@.....@.
>C:42d7 23 12 21 13 23 40 00 04 40 05 00 06 9a 0b 20 0c .....@.....@. >C:4697 00 40 00 00 5e 01 20 04 41 05 23 06 9f 07 6c 08 .....@.....@.
>C:42e7 00 12 20 13 00 40 00 00 5e 01 20 04 41 05 23 06 .....@.....@. >C:46a7 06 0b 21 0c 23 40 00 04 40 05 00 0b 20 0c 00 40 .....!#@.....@.
>C:42f7 9f 07 6c 08 06 0b 21 0c 23 40 00 04 40 05 00 0b .....@.....@. >C:46b7 00 07 d8 08 0c 0b 21 0c 23 0e 2f 0f 10 12 21 13 .....!#@.....@.
>C:4307 20 0c 00 40 00 07 d8 08 0c 0b 21 0c 23 0e 2f 0f .....@.....@. >C:46c7 23 40 00 0b 20 0c 00 12 20 13 00 40 00 07 9f 08 .....@.....@.
>C:4317 10 12 21 13 23 40 00 0b 20 0c 00 12 20 13 00 40 .....@.....@. >C:46d7 09 0b 21 0c 23 40 00 0b 20 0c 00 40 00 07 d8 08 .....!#@.....@.
>C:4327 00 07 9f 08 09 0b 21 0c 23 40 00 0b 20 0c 00 40 .....@.....@. >C:46e7 0c 0b 21 0c 23 12 21 13 23 40 00 06 9a 0b 20 0c .....!#@.....@.
>C:4337 00 07 d8 08 0c 0b 21 0c 23 12 21 13 23 40 00 06 .....@.....@. >C:46f7 00 12 20 13 00 40 00 00 e3 01 16 04 41 05 23 07 .....!#@.....@.
>C:4347 9a 0b 20 0c 00 12 20 13 00 40 00 00 e3 01 16 04 .....@.....@. >C:4707 6c 08 06 0b 21 0c 23 40 00 00 b0 01 19 06 9f 0b .....!#@.....@.
>C:4357 41 05 23 07 6c 08 06 0b 21 0c 23 40 00 00 b0 01 .....@.....@. >C:4717 20 0c 00 40 00 04 40 05 00 06 9a 07 d8 08 0c 0b .....@.....@.
>C:4367 19 06 9f 0b 20 0c 00 40 00 04 40 05 00 06 9a 07 .....@.....@. >C:4727 21 0c 23 12 21 13 23 40 00 00 e3 01 16 04 41 05 .....!#@.....@.
>C:4377 d8 08 0c 0b 21 0c 23 12 21 13 23 40 00 00 e3 01 .....@.....@. >C:4737 23 0b 20 0c 00 12 20 13 00 40 00 00 3e 01 13 06 .....!#@.....@.
>C:4387 16 04 41 05 23 0b 20 0c 00 12 20 13 00 40 00 00 .....@.....@. >C:4747 9f 07 9f 08 09 0b 21 0c 23 40 00 04 40 05 00 0b .....!#@.....@.
>C:4397 3e 01 13 06 9f 07 9f 08 09 0b 21 0c 23 40 00 04 .....@.....@. >C:4757 20 0c 00 40 00 00 5e 01 20 04 41 05 23 07 d8 08 .....@.....@.
>C:43a7 40 05 00 0b 20 0c 00 40 00 00 5e 01 20 04 41 05 .....@.....@. >C:4767 0c 0b 21 0c 23 12 21 13 23 40 00 04 40 05 00 06 .....!#@.....@.
>C:43b7 23 07 d8 08 0c 0b 21 0c 23 12 21 13 23 40 00 04 .....@.....@. >C:4777 9a 0b 20 0c 00 12 20 13 00 40 00 00 d6 01 1c 04 .....@.....@.
>C:43c7 40 05 00 06 9a 0b 20 0c 00 12 20 13 00 40 00 00 .....@.....@. >C:4787 41 05 23 06 9f 07 6c 08 06 0b 21 0c 23 40 00 04 .....A.#.....!#@
>C:43d7 d6 01 1c 04 41 05 23 06 9f 07 6c 08 06 0b 21 0c .....@.....@. >C:4797 40 05 00 06 9a 0b 20 0c 00 40 00 00 b0 01 19 04 .....@.....@.
>C:43e7 23 40 00 04 40 05 00 06 9a 0b 20 0c 00 40 00 00 .....@.....@. >C:47a7 41 05 23 06 9f 07 d8 08 0c 0b 21 0c 23 12 21 13 .....A.#.....!#@
>C:43f7 b0 01 19 04 41 05 23 06 9f 07 d8 08 0c 0b 21 0c .....@.....@. >C:47b7 23 40 00 04 40 05 00 0b 20 0c 00 12 20 13 00 40 .....@.....@.
>C:4407 23 12 21 13 23 40 00 04 40 05 00 0b 20 0c 00 12 .....@.....@. >C:47c7 00 07 9f 08 09 0b 21 0c 23 40 00 0b 20 0c 00 40 .....@.....@.
>C:4417 20 13 00 40 00 07 9f 08 09 0b 21 0c 23 40 00 0b .....@.....@. >C:47d7 00 07 d8 08 0c 0b 21 0c 23 12 21 13 23 40 00 06 .....!#@.....@.
>C:4427 20 0c 00 40 00 07 d8 08 0c 0b 21 0c 23 12 21 13 .....@.....@. >C:47e7 9a 0b 20 0c 00 12 20 13 00 40 00 04 41 05 23 07 .....@.....@.
>C:4437 23 40 00 06 9a 0b 20 0c 00 12 20 13 00 40 00 04 .....@.....@. >C:47f7 6c 08 06 0b 21 0c 34 04 00 00 d6 01 1c 0b 20 0c .....l...!4@.....@.
>C:4447 41 05 23 07 6c 08 06 0b 21 0c 34 04 00 00 d6 01 .....@.....@. >C:4807 00 40 00 00 b0 01 19 07 d8 08 0c 0b 21 0c 23 12 .....@.....@.
>C:4457 1c 0b 20 0c 00 40 00 00 b0 01 19 07 d8 08 0c 0b .....@.....@. >C:4817 21 13 23 40 00 00 d6 01 1c 0b 20 0c 00 12 20 13 .....!#@.....@.
>C:4467 21 0c 23 12 21 13 23 40 00 00 00 d6 01 1c 0b 20 0c .....@.....@. >C:4827 00 40 00 00 b0 01 19 06 9f 07 9f 08 09 0b 21 0c .....@.....@.
>C:4477 00 12 20 13 00 40 00 00 b0 01 19 06 9f 07 9f 08 .....@.....@. >C:4837 23 40 00 04 40 05 00 06 9a 0b 20 0c 00 40 00 00 .....@.....@.
>C:4487 09 0b 21 0c 23 40 00 04 40 05 00 06 9a 0b 20 0c .....@.....@. >C:4847 7d 01 26 04 41 05 23 06 9f 07 d8 08 0c 0b 21 0c .....&.A.#.....!
>C:4497 00 40 00 00 d6 01 1c 04 41 05 23 06 9f 07 d8 08 .....@.....@. >C:4857 23 12 21 13 23 40 00 04 40 05 00 06 9a 0b 20 0c .....!#@.....@.
>C:44a7 0c 0b 21 0c 23 12 21 13 23 40 00 04 40 05 00 06 .....@.....@. >C:4867 00 12 20 13 00 40 00 00 4a 01 22 04 41 05 23 06 .....@.....@.
>C:44b7 9a 0b 20 0c 00 12 20 13 00 40 00 00 9a 01 15 04 .....@.....@. >C:4877 9f 07 92 08 08 0b 21 0c 23 0e d8 0f 0c 40 00 04 .....!#@.....@.
>C:44c7 41 05 23 06 9f 07 92 08 08 0b 21 0c 23 0e d8 0f .....@.....@. >C:4887 40 05 00 0b 20 0c 00 40 00 07 6c 08 06 0b 21 0c .....@.....@.
>C:44d7 0c 40 00 04 40 05 00 0b 20 0c 00 40 00 07 cd 08 .....@.....@. >C:4897 23 12 21 13 23 40 00 0b 20 0c 00 12 20 13 00 40 .....!#@.....@.
>C:44e7 0a 0b 21 0c 23 12 21 13 23 40 00 0b 20 0c 00 12 .....@.....@. >C:48a7 00 07 49 08 04 0b 21 0c 23 40 00 0b 20 0c 00 40 .....!#@.....@.
>C:44f7 20 13 00 40 00 07 6c 08 06 0b 21 0c 23 40 00 0b .....@.....@. >C:48b7 00 40 00 06 9a 40 00 40 00 40 00 40 00 40 00 7f .....@.....@.
>C:4507 20 0c 00 40 00 07 cd 08 0a 0b 21 0c 23 12 21 13 .....@.....@. >C:48c7 aa aa aa
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high nibble (waveform)

noise (7)
pulse (6)
saw (bit 5)
triangle (bit 4)

low nibble (gate & other)

disable oscillator (bit 3)
ring modulation (bit 2)
sync (bit 1)
gate (bit 0)

The 12 days of:
Commodore's
'Christmas Album' (1982)

Day 2 / 12

- Setting the stage for the 2nd day of "12 Days..."
- Introduction to analog synthesis.; aka the fundamentals of sound via quick Moog minimoog demo
- Diving into the MOS 6581 specs
- How to (in theory) connect a SID chip to a 6502 CPU, Ben Eater style
- Another look at SID data in context
- Guru mode intro (for next time)

The 12 days of:
Commodore's
'Christmas Album' (1982)

Day 3 / 12

- Setting the stage for the 3rd day of 'Christmas Album'
- Comparing a \$10,000 analog monster to a \$3 MOS 6581 IC
- Digital control versus Analog (does it matter?)
- Time series recording (BPM vs. MIDI clock vs. FOR/NEXT in BASIC)
- Examining Day 3's work in context (OSC, filter, & ring mod dynamics)
- Recollection of the first song I ever learned to play a synth keyboard (besides the theme from "Axel F"). It was a on a