

\$15.00

Price includes punched
paper tape listing.

SPACEWAR

 **Cromemco**
Specialists in computer peripherals
2432 Charleston Rd., Mountain View, CA 94043

SPACEWAR

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SPACEWAR is a simulation game for two players. The simulation is performed by a Z-80 or 8080 microprocessor equipped with at least the following:

1. 8K RAM
2. A CROMEMCO DAZZLER TV interface (including a TV)
3. A CROMEMCO D+7A analog/digital board
4. A pair of CROMEMCO JS-1 joysticks

The program simulates a portion of an imaginary universe. Within this portion of space, the two combatants' spaceships travel around a central sun and are attracted to it by gravity. The spaceships have distinct profiles so that they can be distinguished.

Each joystick console controls one ship. The object of the game is to blow up your opponent's ship with a torpedo, while your ship remains intact.

The joystick controls the acceleration and the aspect of the ship. Move the stick slightly forward to activate the ship's thruster. The ship will accelerate in the direction it is pointed as long as the stick is held forward (and as long as there is fuel remaining). Acceleration is indicated by exhaust leaving the rear of the ship.

The ship will rotate clockwise while the joystick is held to the right of center, and counter-clockwise while held to

the left of center. Ships can be rotated as much as desired without using up any resources.

The actions may be combined. For example, holding the stick forward and to the right will cause the ship to accelerate while rotating clockwise.

Note that it only takes a small motion forward or to the side to control the ship. Pushing the stick all the way forward or to the side produces no additional effect.

Pulling the stick to the rear will cause the ship to enter HYPERSPACE (see next page). It is necessary to pull the stick at least 3/4 of the way back in order to accomplish this (unlike the comparatively subtle motions required for thruster and rotator control).

Pushing switch 1 on the console causes a torpedo to be fired from the torpedo tube located in the nose of the ship. The torpedo leaves the ship with a fixed forward velocity relative to the ship's velocity. To aim the torpedo you must aim the entire ship. A torpedo will destroy any ship or other torpedo which it may come very close to. Each ship has a limited number of torpedoes.

Torpedoes self-destruct after a short period. Their range is thus limited by their speed. Torpedoes are not affected by gravity so if they are fired in a forward direction by a ship near the sun (and thus going fast) they will fly away at great speed. If switch 1 is held down, torpedoes will be fired in a machine-gun-like fashion at the rate of about 2 per second at 2MHz CPU speed (or 4 per second at 4MHz).

When a player's ship is about to be blown up by a torpedo which can't be shot down, it is wise to enter HYPERSPACE as a last resort. This is done by pulling the joystick sharply to the rear. The ship will disappear, to reappear shortly thereafter in some random location disguised as a star. While in this state, it is vulnerable to torpedoes but cannot be controlled. Another second or two and it reappears as a spaceship, with a random velocity and attitude imparted to it by hyperspace. There is a small (1/8) chance that it will explode upon emergence from hyperspace - so hyperspace is indeed a last resort.

Special Environmental Details:

1. First one should note that space curves back upon itself in such a manner that the upper and lower boundaries of space coincide. Consequently, if a ship or a torpedo drifts off the top of the screen, it reappears on the bottom, and vice-versa. The same is true of the left and right boundaries. Experts will use this fact to "shoot around the screen" and a novice will find a torpedo attacking him from out of nowhere.
2. Since each opposite edge is identical in the simulated environment, all four corners are in reality one single spot in space (in fact, the spot furthest from the sun). If the sun attracts a ship too closely, rather than swallow it up, the ship is dumped "in the four corners". This spatial singularity adds interest to the game but a physics purist may suppress it (see OPERATING INSTRUCTIONS).

3. The stars in the background are part of a large star field which circulates about once per hour. These stars have no effect on the game, except for aesthetics and helping the players see the edges of the screen.

SCORING:

1. If both players run out of torpedoes, the game is counted as a tie.
2. When either ship explodes, the simulation continues for a few seconds (to make sure the survivor evades any remaining torpedoes) and then the survivor (if any) is credited with a win.
3. If your microprocessor has an IMSAI or CROMEMCO front panel with 8 programmed output lights, the score is kept there. The rightmost 4 bits for the player on the right and the leftmost 4 bits for the player on the left, naturally.
4. It is customary to play until one player achieves a certain score (usually 16- overflowing his 4 bit counter) and then he plays the next opponent. Shorter series, such as best 5 out of 9, are quite rewarding. To reset the score, restart the program (see below).

OPERATING INSTRUCTIONS

The starting address of the program is \emptyset . The game may be restarted by simultaneously depressing switches 2 and 3 on either console. (However, if either ship has exploded, the program will not respond to a restart request for several seconds).

OPTIONS

Several options may be selected when the game is restarted. Hold down the switches corresponding to the desired options on one console and depress and release switches 2 and 3 on the other console.

<u>Switch</u>	<u>Option</u>
2	Eliminate the sun (and its gravity).
3	Cause the sun to be lethal.
4	Eliminate the starfield.

(Combinations of options which do not involve both switches 2 and 3 are allowed).

LOADING THE PROGRAM

The SPACEWAR simulation program occupies almost 4K of RAM. Another 4K is required for data storage. SPACEWAR is available from CROMEMCO either in PROM or on paper tape. If it is stored in PROM on a BYTESAVER, simply transfer it from PROM to RAM at location 0 and begin execution at 0.

The following program can be used to load it from paper tape into RAM 0.

<u>Location</u>	<u>Contents</u>
1800 Hex	21 00 00 LD HL, 0 (LXI H,0)
1803	DB (STATUS) IN STATUS
1805	E6 (DAV) AND DAV (ANI DAV)
1807	CA 03 18 JP Z, 1803H (JZ 1803H)
180A	DB (DATA) IN DATA
180C	77 LD (HL),A (MOV M,A)
180D	23 INC HL (INX H)
180E	C3 03 18 JP 1803H (JMP 1803H)

Where STATUS is the control port number for your serial I/O card, DATA is the data port number, and DAV is the data-available mask. (DAV = 40 Hex if the status control bit is bit 6). The instruction at location 1807 Hex will have to be changed to C2 03 18 if your status control bit is active low.

SPACEWAR HEX LISTING

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000: C3 C0 0C 00 00 00 00 00 CD 48 00 C3 08 00 00 00
010: CD 48 00 C3 13 00 00 00 CD 48 00 C3 18 00 00 00
020: CD 48 00 C3 23 00 00 00 CD 48 00 C3 2B 00 00 00
030: CD 48 00 C3 33 00 00 00 CD 48 00 C3 3B 00 08 00
040: 00 00 00 00 00 00 E6 DF 22 44 00 21 00 00 39 22
050: 46 00 31 44 00 D5 C5 F5 F9 C9 00 00 00 16 A4 02
060: 00 30 00 C0 00 00 20 F6 55 C0 4B 84 FB 18 E3 D5
070: 1E 4D 10 FE EF FF 3E 1C 02 2E 1C 02 4E 1C 02 1E
080: 1C 02 5E 1C 02 0E 1C 02 6E 1C 20 4E 1C 20 5E 1C
090: 20 6E 1C 20 4D 1C 20 5D 1C 20 6D 1C FF 59 1C FF
0A0: 59 1C 20 58 1C 10 58 1C FF 00 00 00 00 00 00 00
0B0: 00 F0 00 87 00 20 8C 02 00 00 FB 6F 93 2D 56 04
0C0: E2 1A F8 FF 3C 1C 80 2B 1C 40 3C 1C 08 1B 1C 2D
0D0: 1A 1C 10 2C 1C 80 3B 1C 80 2C 1C 08 3D 1C 10 4D
0E0: 1C 08 4C 1C 10 5C 1C 04 5D 1C FF 76 1B 10 76 1B
0F0: 40 66 1B FF 56 1B FF 00 00 00 00 00 00 00 00 F6
100: F3 6D 00 20 7F 02 00 00 D0 01 23 02 C8 4D C3 00
110: 6F 93 2D 56 BB 00 68 14 BA 0A 61 09 00 00 0E AA
120: 10 10 00 02 60 00 05 00 00 00 01 00 33 01 11 6D
130: 00 21 75 00 CD 44 02 3A B2 00 57 3A B1 00 5F 3A
140: 6C 00 CD 6A 02 32 6C 00 DA B0 01 21 00 00 CD D5
150: 02 62 68 CD D5 02 CD CB 02 7A 82 67 7B 83 6F CD
160: D5 02 CD CB 02 7A 84 67 7B 85 6F CD D5 02 CD CB
170: 02 AF 93 47 92 67 78 82 6F CD D5 02 7C 92 67 7D
180: 93 6F CD D5 02 7C 92 67 7D 93 6F CD D5 02 7B 92
190: 67 AF 93 92 6F CD D5 02 7C 92 67 7D 93 6F CD D5
1A0: 02 7C 92 67 7D 93 6F CD D5 02 3A B8 00 CD AB 02
1B0: 2A 0E 01 3E FF 77 11 BB 00 21 C3 00 CD 44 02 3A
1C0: 00 01 57 3A FF 00 5F 3A BA 00 CD 6A 02 32 BA 00
1D0: DA 3D 02 21 00 00 CD D5 02 62 6B CD D5 02 CD CB
1E0: 02 7A 82 67 7B 83 6F CD D5 02 7A 84 67 7B 85 6F
1F0: CD D5 02 AF 93 67 6A CD D5 02 CD CB 02 E5 7C 92
200: 67 7D 93 6F CD D5 02 7C 92 67 7D 93 6F CD D5 02
210: 7C 92 67 7D 93 6F CD D5 02 E1 AF 94 92 67 AF 95
220: 93 6F CD D5 02 7C 92 67 7D 93 6F CD D5 02 7C 92
230: 67 7D 93 6F CD D5 02 3A 06 01 CD AB 02 2A 0E 01
240: 3E FF 77 C9 E5 22 0E 01 EB 5E 23 56 23 EB 22 10
250: 01 EB 5E 23 56 EB 22 12 01 E1 7E EE FF C8 23 5E
260: 23 56 23 EB A6 77 EB C3 5A 02 FE 01 C8 FE FB CA
270: 82 02 FE 80 C2 84 02 3A 6A 00 47 21 00 00 CD D5
280: 02 78 37 C9 FE 02 C2 97 02 CD 81 07 E6 07 3E 02
290: C2 97 02 3D CD 46 0B 3D F2 7A 02 FE FB DA 82 02
2A0: 47 7A 17 57 A7 7B 17 5F A7 78 C9 A7 C8 AF 92 87
2B0: 87 67 AF 93 87 87 6F 3A 08 01 E6 03 47 CD D5 02
2C0: 05 F8 7C 92 67 7D 93 6F C3 BD 02 E5 AF 94 67 AF
2D0: 95 6F C3 D6 02 E5 D5 C5 7C 1F 1F 3C 1F E6 1F FE
2E0: 10 DA E6 02 F6 E0 67 3A 11 01 84 1F 47 7D 1F 1F
2F0: 3C 1F E6 1F FE 10 DA FB 02 F6 E0 6F 3A 13 01 85

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300: 1F 4F CD 19 03 EB 2A 0E 01 77 23 73 23 72 23 22
310: 0E 01 EB B6 77 C1 D1 E1 C9 79 E6 60 C6 40 E6 A0
320: 57 78 E6 40 82 07 07 07 57 79 E6 1E 07 07 07 5F
330: 78 E6 3C 0F 0F 83 5F 79 1F 78 17 E6 07 4F 06 00
340: 21 4A 03 09 7E 21 00 18 19 C9 01 04 02 08 10 40
350: 20 80 21 50 14 7E FE FF C8 23 23 46 23 23 4E 11
360: 05 00 19 E5 5E 23 56 23 7E EB 2F A6 77 EB 11 F5
370: FF 19 7E A7 CA 8F 03 78 1F 47 79 1F 4F CD 19 03
380: EB E1 73 23 72 23 77 23 EB B6 77 EB C3 55 03 E1
390: 36 00 23 36 00 23 36 00 23 C3 55 03 3A 6C 00 FE
3A0: 02 DA A9 03 FE F8 DA AF 03 21 6D 00 CD DE 03 3A
3B0: BA 00 FE 02 DA BC 03 FE F8 DA C2 03 21 BB 00 CD
3C0: DE 03 21 50 14 7E A7 C2 D1 03 11 0C 00 19 C3 C5
3D0: 03 FE FF C8 23 CD DE 03 11 08 00 C3 CD 03 CD E6
3E0: 03 23 CD E6 03 C9 E5 4E 23 46 23 23 23 7E 07 07
3F0: 07 07 5F 23 7E 07 07 07 07 57 AB E6 F0 AB 5F 7A
400: E6 0F FE 08 DA 09 04 F6 F0 57 EB 09 EB E1 73 23
410: 72 C9 3A 6C 00 FE 01 C2 28 04 C3 0F 0D 78 07 07
420: 47 C9 21 6D 00 CD 39 04 3A BA 00 FE 01 C0 C3 70
430: 0D 00 21 BB 00 CD 39 04 C9 F5 22 14 01 01 47 00
440: 09 34 FA 37 05 36 00 1F D2 37 05 01 01 00 09 35
450: F2 58 04 36 00 C3 37 05 21 50 14 16 3E 7E A7 CA
460: 7D 04 FE FF CA 6F 04 01 0C 00 09 15 C3 5D 04 A2
470: CA 37 05 01 0C 00 09 36 FF 01 F4 FF 09 3A 68 00
480: 77 22 16 01 AF 01 09 00 09 77 23 77 23 77 2A 14
490: 01 01 45 00 09 7E 2A 5C 00 44 4D CD 35 07 EB 2A
4A0: 14 01 D5 01 04 00 09 7E 83 5F 23 7E 8A 2A 16 01
4B0: 01 05 00 09 73 23 77 E1 7C A7 F2 BE 04 37 1F 67
4C0: 7D 1F 6F EB 2A 14 01 7E 83 5F 23 7E 8A 2A 16 01
4D0: 23 73 23 77 2A 14 01 01 44 00 09 7E 2A 5C 00 44
4E0: 4D CD 35 07 EB 2A 14 01 D5 01 06 00 09 7F 83 5F
4F0: 23 7E 8A 2A 16 01 01 07 00 09 73 23 77 E1 7C A7
500: F2 04 05 37 1F 67 7D 1F 6F EB 2A 14 01 23 23 7E
510: 83 5F 23 7E 8A 2A 16 01 23 23 23 73 23 77 2A 14
520: 01 01 47 00 09 3A 67 00 77 3A B5 00 47 3A 03 01
530: B0 C2 37 05 CD 46 0B 2A 14 01 01 4B 00 09 36 00
540: F1 F5 E6 02 CA BA 05 01 FE FF 09 5E 23 56 7A B3
550: CA BA 05 1B 72 2B 73 01 02 00 09 34 01 FA FF 09
560: 7E 2A 60 00 44 4D CD 35 07 EB 5A 7A 16 00 A7 F2
570: 74 05 16 FF 2A 14 01 01 04 00 09 7E 23 66 6F 19
580: EB 2A 14 01 01 04 00 09 73 23 72 01 3F 00 09 7E
590: 2A 60 00 44 4D CD 35 07 EB 5A 7A 16 00 A7 F2 A3
5A0: 05 16 FF 2A 14 01 01 06 00 09 7E 23 66 6F 19 ER
5B0: 2A 14 01 01 06 00 09 73 23 72 2A 14 01 01 4C 00
5C0: 09 7E A7 CA C7 05 35 F1 E6 0C C8 FE 0C CA 10 06
5D0: FE 08 C2 DA 05 3E FF C3 DC 05 3E 01 2A 14 01 01
5E0: 46 00 09 86 FE FF CA 0B 06 FE B4 C2 EF 05 AF 77
5F0: 4F 06 00 21 54 06 09 5E 01 2D 00 09 56 2A 14 01
600: 01 45 00 09 72 01 FF FF 09 73 C9 3E B3 C3 EF 05
610: 7E A7 C0 2A 14 01 2B 3A 69 00 77 23 23 CD 81 07
620: 77 23 23 CD 81 07 77 23 CD 81 07 77 23 CD 81 07
630: E6 0F 77 23 CD 81 07 77 23 CD 81 07 E6 0F 77 01
640: 3F 00 09 CD 81 07 E6 7F 77 01 06 00 09 3A 6B 00
650: 77 C3 DA 05 00 01 01 02 02 03 03 04 04 05 05 06
660: 07 07 08 08 08 09 09 0A 0A 0B 0B 0C 0C 0C 0D 0D
670: 0D 0E 0E 0E 0E 0F 0F 0F 0F 10 10 10 10 10 10

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680: 10 10 10 10 10 10 10 10 10 0F 0F 0F 0F 0E 0E
690: 0E 0E 0D 0D 0D 0C 0C 0C 0B 0B 0A 0A 09 09 08 08
6A0: 08 07 07 06 05 05 04 04 03 03 02 02 01 01 00 FF
6B0: FF FE FE FD FD FC FC FB FB FA F9 F9 F8 F8 F7 F7
6C0: F7 F6 F6 F5 F5 F4 F4 F4 F3 F3 F3 F2 F2 F2 F2 F1
6D0: F1 F1 F1 F1 F0 F0 F0 F0 F0 F0 F0 F0 F0 F0 F0
6E0: F0 F0 F0 F1 F1 F1 F1 F1 F2 F2 F2 F2 F3 F3 F3 F4
6F0: F4 F4 F5 F5 F6 F6 F7 F7 F8 F8 F8 F9 F9 FA FB FB
700: FC FC FD FD FE FE FF FF 00 01 01 02 02 03 03 04
710: 04 05 05 06 07 07 08 08 08 09 09 0A 0A 0B 0B 0C
720: 0C 0C 0D 0D 0D 0E 0E 0E 0E 0F 0F 0F 0F 10 10
730: 10 10 10 10 10 57 79 E6 F8 0F 0F 0F 1F CE 00 4F
740: 78 0F 0F 0F 0F 5F E6 0F FE 08 DA 4F 07 F6 F0 47
750: 7B E6 F0 81 4F D2 59 07 04 7A A7 F2 69 07 2F 3C
760: 57 AF 91 4F 3E 00 98 47 7A CD 6D 07 C9 21 00 00
770: 37 C3 76 07 29 A7 17 D2 74 07 A7 C8 29 09 C3 75
780: 07 E5 21 1E 01 3A 08 01 AE 07 07 07 86 77 E1 C9
790: 21 6C 00 7E 23 EB FE 01 FA B2 07 DA B2 07 21 50
7A0: 14 7E A7 C2 AD 07 01 0C 00 09 C3 A1 07 FE FF C2
7B0: F0 07 01 6D 00 78 AA C2 C5 07 79 AB C2 C5 07 21
7C0: BA 00 C3 93 07 01 BB 00 78 AA C2 E7 07 79 AB C2
7D0: E7 07 11 50 14 1A A7 CA E8 07 FE FF CA FE 07 21
7E0: 0C 00 19 13 C3 A1 07 1B 21 0C 00 19 EB C3 D5 07
7F0: 23 CD 61 08 DA 43 08 01 0B 00 09 C3 A1 07 3A 6C
800: 00 FE 01 FA 2D 08 DA 2D 08 3A BA 00 FE 01 FA 2D
810: 08 DA 2D 08 11 6D 00 21 BB 00 CD 61 08 D2 2D 08
820: 21 6C 00 36 00 21 BA 00 36 00 CD 46 08 21 50 14
830: 7E A7 C2 3C 08 01 0C 00 09 C3 30 08 FE FF C8 35
840: C3 35 08 2B 36 00 23 EB 2B 36 00 23 EB 3A 6C 00
850: A7 CA 5B 08 3A BA 00 A7 C2 F7 07 CD 46 08 C3 F7
860: 07 D5 E5 1A 96 13 23 1A 9E F2 6D 08 2F FE 07 D2
870: 87 08 47 13 23 1A 96 13 23 1A 9E F2 7F 08 2F FE
880: 07 D2 87 08 80 FE 09 E1 D1 C9 3A 1C 01 E6 01 C2
890: DB 08 2A 18 01 7E FE FE CA AD 08 FE FF CA B3 08
8A0: 23 5E 23 56 23 EB 2F A6 77 EB C3 95 08 21 BA 0A
8B0: C3 B4 08 23 22 18 01 7E FE FE CA CE 08 FE FF CA
8C0: CE 08 23 5E 23 56 23 EB B6 77 EB C3 B7 08 21 6C
8D0: 00 CD E6 08 21 BA 00 CD E6 08 C9 2A 1A 01 01 60
8E0: 09 09 22 1A 01 C9 7E FE 01 C2 0C 0A 23 23 22 14
8F0: 01 7E EE 80 F2 F9 08 2F 3C 32 20 01 4F 06 00 CD
900: 6D 07 E5 2A 14 01 23 23 7E EE 80 F2 10 09 2F 3C
910: 32 21 01 4F 06 00 CD 6D 07 C1 09 7C A7 CA 29 09
920: F2 2F 09 21 FF 7F C3 2F 09 7D FE 21 DA E2 09 22
930: 22 01 06 08 29 DA 3D 09 05 29 D2 34 09 2A 22 01
940: 05 FA 4E 09 7C A7 1F 67 7D 1F 6F C3 40 09 23 16
950: 02 44 4D C5 2A 22 01 CD 17 0A 6F 26 00 C1 09 23
960: 7C A7 1F 67 7D 1F 6F 15 C2 51 09 22 26 01 2A 22
970: 01 44 4D 2A 62 00 EB 2A 64 00 CD 35 0A 22 24 01
980: 3A 20 01 4F 06 00 CD 7B 0A 3A 26 01 4F 3A 27 01
990: 47 CD 35 0A EB 2A 14 01 7E A7 F2 A4 09 AF 93 5F
9A0: 3E 00 9A 57 23 23 23 7E 83 77 23 7E 8A 77 2A 24
9B0: 01 3A 21 01 4F 06 00 CD 7B 0A 3A 26 01 4F 3A 27
9C0: 01 47 CD 35 0A EB 2A 14 01 23 23 7E A7 F2 D7 09
9D0: AF 93 5F 3E 00 9A 57 23 23 23 7E 83 77 23 7E 8A
9E0: 77 C9 3A 1C 01 E6 02 C2 01 0A 2A 14 01 2B 3E FF
9F0: 77 23 77 23 77 23 77 23 AF 77 23 77 23 77 23 77

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A00: C9 2A 14 01 2B 2B 36 00 CD 46 0B C9 2A 1A 01 01
A10: B0 04 09 22 1A 01 C9 D5 AF 90 47 3E 00 99 4F 3E
A20: 01 54 5D 09 DA 2F 0A 62 6B 17 D2 23 0A D1 C9 17
A30: D2 21 0A D1 C9 22 2A 01 EB 22 28 01 AF 91 4F 3E
A40: 00 98 47 21 01 00 22 2C 01 A7 21 28 01 7E 17 77
A50: 23 7E 17 77 23 7E 17 77 23 7E 17 77 2A 2A 01 09
A60: D2 66 0A 22 2A 01 21 2C 01 7E 17 77 23 7E 17 77
A70: D2 49 0A 2A 2A 01 EB 2A 2C 01 C9 22 2C 01 21 00
A80: 00 22 2A 01 26 80 22 28 01 21 2D 01 7E 1F 77 2B
A90: 7E 1F 77 D2 9D 0A 2A 2A 01 09 22 2A 01 21 2B 01
AA0: 7E 1F 77 2B 7E 1F 77 2B 7E 1F 77 2B 7E 1F 77 D2
AB0: 89 0A 2A 2B 01 EB 2A 2A 01 C9 A8 FF 19 04 E0 1B
AC0: 08 F0 1B 10 0F 1C 20 1F 1C 15 00 1E FF 80 EF 19
AD0: 60 FF 19 4D F0 1B B2 0F 1C 03 00 1E 01 10 1E FF
AE0: D0 FF 19 07 F0 1B F0 0F 1C 0B 00 1E FF 3A 1C 01
AF0: E6 04 C0 2A 0C 01 01 04 00 09 22 0C 01 21 9F 0F
B00: 7E FE FF C8 E5 23 5E 23 56 23 EB 2F A6 77 EB 5E
B10: 23 56 23 4E 2A 0C 01 19 7C 07 57 E6 81 C2 3C 0B
B20: 7D 07 E6 01 B2 2F 47 CD 19 03 EB E1 77 23 73 23
B30: 72 23 EB B6 77 E9 23 23 23 C3 00 09 E1 36 00 01
B40: 06 00 09 C3 00 0B F5 2A 08 01 01 C8 00 09 22 0A
B50: 01 E1 C9 3A 6C 00 FE 01 C2 71 0B 3A BA 00 FE 01
B60: CA 80 0B 3A 1D 01 C6 10 32 1D 01 2F D3 FF C3 80
B70: 0B 3A BA 00 FE 01 C2 80 0B 3A 1D 01 3C C3 6B 0B
B80: 21 00 C0 22 BB 00 22 6F 00 21 00 40 22 6D 00 22
B90: BD 00 21 00 00 22 71 00 22 BF 00 22 73 00 22 C1
BA0: 00 3E 01 32 6C 00 32 BA 00 3E 00 32 B4 00 32 02
BB0: 01 32 B2 00 32 00 01 32 B9 00 32 07 01 32 B8 00
BC0: 32 06 01 3E FF 32 50 14 32 75 00 32 C3 00 3A 66
BD0: 00 32 B5 00 32 03 01 2A 5E 00 22 B6 00 22 04 01
BE0: 3E 87 32 B3 00 3E 2D 32 01 01 3E 10 32 FF 00 3E
BF0: F0 32 B1 00 CD A8 0C 21 EC 0A 22 18 01 C9 FE E0
C00: D0 78 F6 0C 47 E3 19 E3 C9 31 00 18 21 01 00 22
C10: 1A 01 21 00 00 22 0B 01 06 C8 21 9F 0F AF 77 23
C20: 77 23 77 23 CD 81 07 77 23 CD 81 07 77 23 CD 81
C30: 07 77 23 3A 0B 01 3C 32 0B 01 05 C2 1D 0C 36 FF
C40: CD 53 0B 3E 8C D3 0E 3E 6C D3 0F AF 32 1D 01 2F
C50: D3 FF C3 A2 0C CD 12 04 CD 9C 03 CD 90 07 CD 2E
C60: 01 CD 52 03 CD 8A 0B 2A 1A 01 2B 7C B5 C2 6A 0C
C70: 21 01 00 22 1A 01 2A 0B 01 23 22 0B 01 3A 0B 01
C80: 07 07 07 07 E6 01 3A 00 18 3A 0A 01 BD C2 9A 0C
C90: 3A 0B 01 BC C2 9A 0C CD 53 0B 3A 0B 01 E6 07 C2
CA0: A5 0C CD ED 0A C3 55 0C 21 00 18 11 00 20 AF 77
CB0: 23 7B BD C2 AE 0C 7A BC C2 AE 0C C9 FF FF FF FF
CC0: DB 1A 07 0F 1F 32 D1 0D DB 19 07 0F 1F 32 D2 0D
CD0: DB 1C 07 0F 1F 32 D3 0D DB 1B 07 0F 1F 32 D4 0D
CE0: AF 32 1C 01 DB 1B E6 06 C2 F4 0C DB 1B 07 07 07
CF0: 2F 32 1C 01 DB 1B E6 60 C2 05 0D DB 1B 0F 2F 32
D00: 1C 01 C3 E4 0C DB 1B E6 06 CA EB 0C C3 09 0C C5

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D10: 06 00 3A D1 0D 4F DB 1A 07 0F 1F 91 FA 2B 0D FE
D20: 0A DA 37 0D 78 F6 02 47 C3 37 0D FE E0 D2 37 0D
D30: 78 F6 0C 47 C3 64 0D 3A D2 0D 4F DB 19 07 0F 1F
D40: 91 FA 50 0D FE 06 DA 59 0D 78 F6 04 47 C3 59 0D
D50: FE FA D2 59 0D 78 F6 08 47 DB 18 E6 01 C2 64 0D
D60: 78 F6 01 47 DB 18 E6 06 78 C1 CA C0 0C C3 22 04
D70: C5 06 00 3A D3 0D 4F DB 1C 07 0F 1F 91 FA 8C 0D
D80: FE 0A DA 98 0D 78 F6 02 47 C3 98 0D FE E0 D2 98
D90: 0D 78 F6 0C 47 C3 C5 0D 3A D4 0D 4F DB 18 07 0F
DA0: 1F 91 FA B1 0D FE 06 DA BA 0D 78 F6 04 47 C3 BA
DB0: 0D FE FA D2 BA 0D 78 F6 08 47 DB 18 F6 10 C2 C5
DC0: 0D 78 F6 01 47 DB 18 E6 60 78 C1 CA C0 0C C3 32
DD0: 04 01 02 03 04