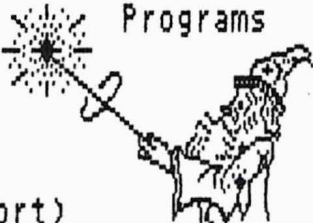


Northamerican S O R C E R E R
 Software Programs
 AUDIO & JOYSTICK
 INTERFACE
 (via the Parallel Port)



Digital/Analog Sound & Joystick Interface

This is a high quality printed circuit board designed so that you may enjoy some of the games just a little more. It is fully compatible with most of the games that utilize sound effects or music. You can even program sound effects into your own programs should you wish to do so. The format for the joystick interface has been adopted by most Sorcerer Groups around the World and should be compatible also for those games with joystick interface. Again you can implement this in your own programs.

Sound portion - All that is necessary is an audio amplifier, the better amplifier you have the better the quality of sound. This is achieved via digital (6 bit) to analog conversion. Higher than six bits is not required, the effective resolution or gain is negligible. The main I.C. is socketed for your convenience. There is also a place where you can solder in a printed circuit mounted switch for your audio, should you wish to do so.

Joystick portion - The most inexpensive method has been adopted for plug in of the joystick controllers, 14 Pin I.C. sockets. You can use readily available 14 conductor ribbon cable with 14 pin I.C. plugs. The length of the cables can be decided by you it is not critical at all.

The following format has been adopted by most users, it is up to you whether or not you wish to follow the same method.

For programming in Z80 machine code, the 8 bit INPUT RESULT CODE is returned in the 'A' register. No other registers are affected. If there is no input, the 'A' register must contain 00, and the Z-flag must be set.

| BIT | PIN | FUNCTION |
|-------|-------|----------------|
| 0 | 10 | UNIT #1 LEFT |
| 1 | 22 | UNIT #1 RIGHT |
| 2 | 11 | UNIT #1 UP |
| 3 | 23 | UNIT #1 DOWN |
| 0 & 1 | 10/22 | UNIT #1 FIRE |
| 4 | 12 | UNIT #2 LEFT |
| 5 | 24 | UNIT #2 RIGHT |
| 6 | 13 | UNIT #2 UP |
| 7 | 25 | UNIT #2 DOWN |
| 4 & 5 | 12/24 | UNIT #2 FIRE |
| | 8 | GROUND |
| | 20 | +5 VOLT SUPPLY |

THE FOLLOWING IS A SHORT
TYPICAL INPUT PORT CONTROL

BASIC PROGRAM CONTROL

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100 A=255-INP(255)
110 IF (A AND 3) =3 THEN 'FIRE BUTTON #1'
120 IF (A AND 48)=48 THEN 'FIRE BUTTON #2'
130 IF A AND 1 THEN 'UNIT #1 LEFT'
140 IF A AND 2 THEN 'UNIT #1 RIGHT'
150 IF A AND 4 THEN 'UNIT #1 UP'
160 IF A AND 8 THEN 'UNIT #1 DOWN'
170 IF A AND 16 THEN 'UNIT #2 LEFT'
180 IF A AND 32 THEN 'UNIT #2 RIGHT'
190 IF A AND 64 THEN 'UNIT #2 UP'
200 IF A AND 128 THEN 'UNIT #2 DOWN'
210 GOTO 100 :REM CHECK AGAIN

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Two joysticks may be attached to the INPUT of the parallel port. UNIT #1 uses the LOW - ORDER 4 BITS, and UNIT #2 uses the HIGH - ORDER 4 BITS. Each unit may steer in the four basic directions, LEFT, RIGHT, UP, DOWN, as well as in the four diagonal directions. Both units operate independently, and simultaneous operation is permitted.

FIRE BUTTON control may be included, and has priority over directional control of joystick unit it is attached to.

FIRE BUTTON is activated by grounding both BIT 0 and BIT 1 for unit #1 and BIT 4 and BIT 5 for unit #2.

KEYBOARD has priority over JOYSTICK and overrides both joysticks if used. KEYBOARD INPUT RESULT is returned as RESULT CODE of joystick UNIT #1, with UNIT #2 disabled.

Keyboard directional control is via the "arrow" (normally cursor control) keys. FIRE BUTTON on the keyboard is the NUMERIC-PAD '5' key (home). Optional FIRE BUTTONS may be SKIP/TAB or SPACE BAR. FIRE button overrides directional keys on the keyboard.

In the event that both the left and right keys are pressed together, it is treated as NO INPUT. The same rule applies to depressing both UP and DOWN keys together. The UP/LEFT ('7'), UP/RIGHT ('9'), DOWN/LEFT ('1') and DOWN/RIGHT ('3') keys on the numeric-pad are optional.

Northamerican Software Game Directions

SPIDER- Spider can be as simple or as complex as one wishes. The levels of play are from 1 - 9. This sets how many spiders you wish to contend with during play. The spiders will appear almost anywhere on the screen. It is the object of the game to traverse to the opposite corner of the screen and retrieve the money. You may only travel vertically and horizontally using the arrow keys on the numeric pad. When the spiders get to within three characters distance you can shoot them, leaving a dead body to mark the spot. When firing, you may only shoot in the forward direction. If you build up dead bodies behind you, you may end up blocking any chance to get out. Remember too when being attacked to hold the fire button (5 - numeric pad) down, otherwise you will get gobbled up. The spiders will move very fast so be careful, they may even wait just outside of range for a brief second or two and catch you off guard.

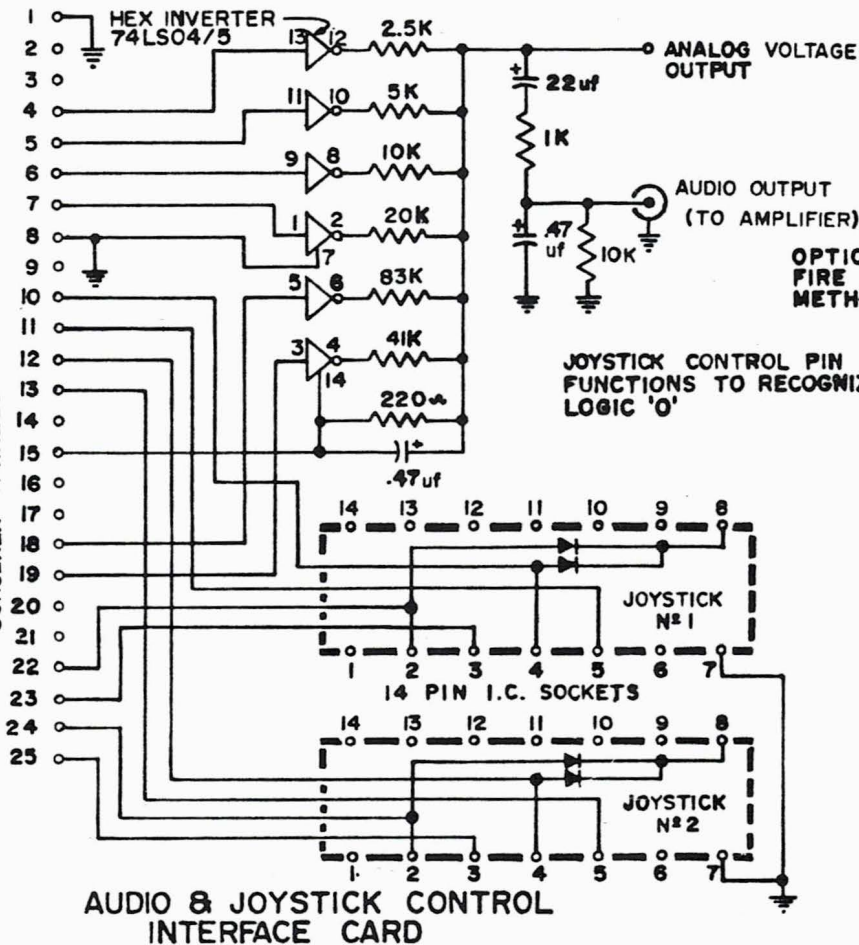
The game is in machine language and loads @ 100 Hex. The execution address is also 150 Hex. Leave the Basic Rom Pac out when loading this game and just type either LO (CR) then GO 150 (CR) or you may LOG the program for automatic execution after loading.

ECHO - This is a mind training program in which the player must echo exactly the same sequence as the computer indicates on the screen. The sequences are never exactly the same. There are four levels of play, the only thing different about them is the length of the sequences. The more difficult level you chose the longer it will be. You use the arrow keys on the numeric pad and try to duplicate the computer's chosen sequence.

With a little practice each day you will find that this will increase your ability to remember things better. It is ideal for small children and sharpens their minds at a very fast rate.

The program loads and executes @ 150 Hex. Loading procedure is the same as outlined above in Spider.

SORCERER PARALLEL CONNECTOR (DB25)



Courtesy of Northamerica Software

