

Convert a Sony HBM-512 Memory-Mapper to 1024 kB

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Warning:

The most important part in the computer is the printed circuit board (PCB). Parts can be replaced, but not the PCB. Do not try to unsolder the parts, but cut them loose and then remove the solder pins. The use of IC sockets is recommended.

Requisites:

- 44C256 memory chip (4 pieces)
- 74LS02
- 74LS139

Preparation:

- 74LS02, shorten pins 1, 2, 4, 5, 8, 10, 11 and 13.
- 74LS02, connect pins 4, 10 and 11.
- 74LS139, shorten pins 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14 and 15.
- 74LS139, connect pin 1 to pin 8.
- 74LS139, connect pin 15 to pin 16.
- 44C256, shorten pin 4 of all 4 pieces.

Conversion (part 1):

- Connect pin 13 of the 74LS645 to pin 7 of the 74LS267.
- Connect pin 7 of the 74LS645 to pin 1 of the middle 74LS670.
- Connect pin 14 of the 74LS367 to pin 9 of the middle 74LS670.

→ Now test the Memory-Mapper.

Conversion (part 2):

- Disconnect pins 5 and 8 of the original 74LS02 (located at the top of the PCB).
- Solder the remaining pins of the additional 74LS02 to the same pins of the original 74LS02.
- Solder the remaining pins of the 74LS139 to the same pins of an equally sized IC near the 74LS02.
- Connect pin 2 of the 74LS139 to pin 10 of the middle 74LS670.
- Connect pin 3 of the 74LS139 to pin 9 of the middle 74LS670.
- Connect pin 4 of the 74LS139 to pin 5 of the lower 74LS02.
- Connect pin 5 of the 74LS139 to pin 8 of the lower 74LS02.
- Connect pin 6 of the 74LS139 to pin 5 of the additional 74LS02.
- Connect pin 7 of the 74LS139 to pin 8 of the additional 74LS02.

→ Now test the Memory-Mapper and verify that the standard memory still works.

Conversion (part 3):

- Solder the 4 memory chips (44C256) with the shortened pins onto the original 4 memory chips. Depending on the cartridge housing, these will be located at the bottom or top of the PCB.
- Connect pin 4 of the two middle additional memory chips to pin 1 of the additional 74LS02.
- Connect pin 4 of the two additional memory chips on the outsides to pin 13 of the additional 74LS02.

If everything is properly connected then a 1024 kB Memory-Mapper will be present.