Expand Toshiba Music Module with 32 kB Sample-Ram

Original by: Bas Kornalijnslijper
Translated by: Bart Hamer

Warning:
The most important part in the Music Module 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.

Background:

The Toshiba Music Module is a bare-bones version of the Philips Music Module. There is no MIDI on it and it is also not possible to record and play samples.

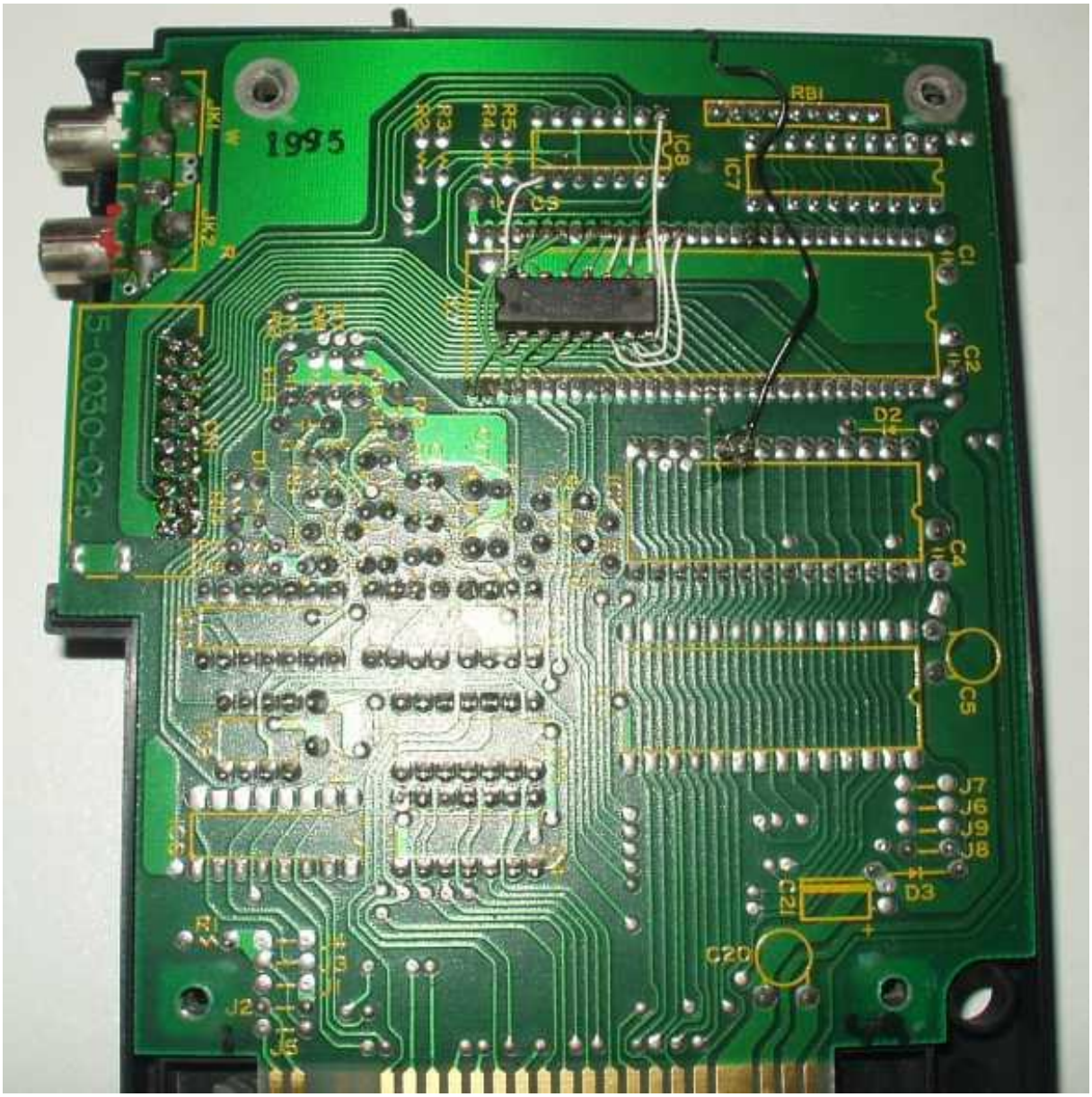
Most programs, supported by the Music Module, also use samples. Playing samples with music or games completes the sound.

Requisites:

- DRAM-IC (21256)
- Double-sided adhesive tape

Preparation:

- Shorten all pins of the 21256.
- Attach the 21256 with a piece of double-sided adhesive tape to the bottom side of the PCB.



Bottom side of the PCB. Pay attention to the mounting method and orientation of ICs.

Make the following connections at the bottom side of the circuit board:

21256 pin #	Connect to
1	IC1 pin 32
2	IC1 pin 39
3	IC1 pin 29
4	IC1 pin 38
5	IC1 pin 39
6	IC1 pin 47
7	IC1 pin 46
8	IC8 pin 7
9	IC1 pin 45
10	IC1 pin 44
11	IC1 pin 43
12	IC1 pin 42
13	IC1 pin 41
14	IC1 pin 30
15	IC1 pin 37
16	IC8 pin 14

The Toshiba program ROM can be bypassed with the ESC key, after which the computer boots in BASIC. However, all BASIC CALL commands no longer work: CALL FORMAT, CALL SYSTEM, CALL MUSIC, and so on.

The simplest solution to this is to remove the EPROM (IC2), but then the internal program will no longer work either.

Another solution for this is to replace the EPROM with a modified version. It's also possible to make the EPROM switchable. Take the EPROM (IC2) out of its socket and bend pin 20 outwards. Then put the EPROM back into the socket while taking care that pin 20 is on the outside of the socket. Solder a 10 kΩ resistor between pin 20 and pin 28 of the EPROM. Mount a switch between pin 20 of the EPROM and pin 20 of the IC socket.