



MMOD-UK-SO-DIMM144-MB-100

Ultra low-cost mother board for Mental Modular's
SO-DIMM144 embedded modules

User Manual

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History

Version	Date	Author	Changes
01.00	10/02/2007	MM99 mm99@mentalmod.com	Initial version.
01.01	17/05/2007	MM99 mm99@mentalmod.com	Document template changed. Product picture added. Schematics added.

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Introduction

MMOD-UK-SO-DIMM144-MB-100 is an ultra low-cost mother board for all the Mental Modular’s SO-DIMM144 suited embedded microprocessor modules. In combination with any of the SO-DIMM144 suited embedded modules manufactured by the company, it gives the user possibility to build a very low-cost development system for our modules (respectively the microcontrollers incorporated).

Taking into account the fact that our modules have a standardized footprint (in terms of power supply, ground, clock inputs/outputs, JTAG signals and “slow” inputs/outputs), in combination with this low-cost board, we give the user opportunity to have a development platform for wide range of microcontroller products with minimal investments (in fact those are all microcontrollers incorporated by our SO-DIMM144 modules).

Key features

- Standard board for use with all SO-DIMM144 suited embedded modules manufactured by Mental Modular Ltd
- Wide prototyping area
- Two standard footprints – SOP20 and SO16
- 8-LEDs connected to the embedded module's slow outputs
- 4-buttons connected to the embedded module's slow inputs
- 4-position DIP switch connected to the embedded modules slow inputs
- Three jumpers for disconnecting the LEDs, buttons and the DIP switch from the power supply
- 5 silicon buffers on the bottom of the board
- Ultra-low cost
- Golden plated two-layer board
- Dimensions – 115 x 100 x 15 mm.

Board components

SO-DIMM144 and power connector

The SO-DIMM144 connector is placed in the middle of the upper field of the board as shown in the figure below. All the SO-DIMM144 connector pins are routed to some vias in order to give the user the comfort to have easier access to the connector (respectively the embedded module) pins.

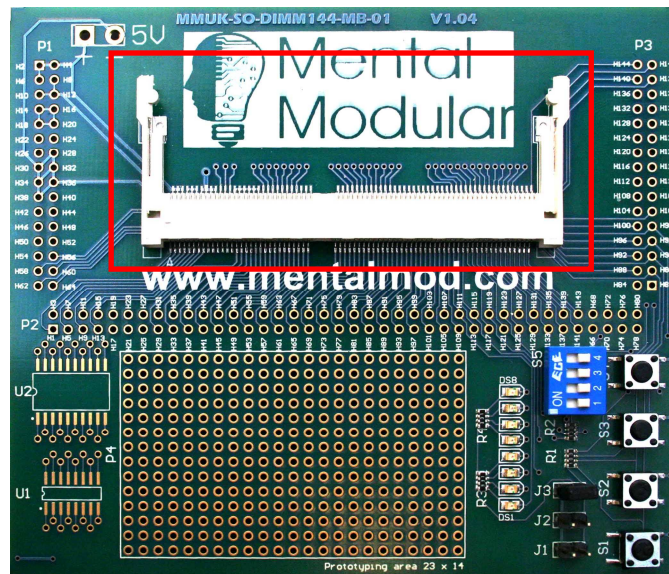


Figure 1. SO-DIMM144 connector placement

There are two optional power connector pads placed in the upper left corner of the board. These pads are in case that the user wants to power the embedded module and the MMOD-UK-SO-DIMM144-100 board not from the USB connector placed on the embedded module, but from an external power supply source. The polarity of the external power supply is designated on the board.

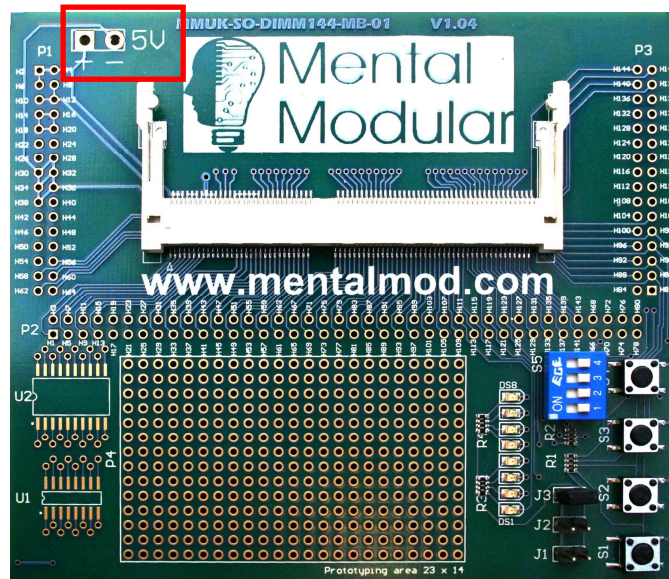


Figure 2. Optional power supply connector pads

Prototyping area

The MMOD-UK-SO-DIMM144-100 board has a wide prototyping area. The prototyping area is 23 x 14 vias wide. The vias dimensions are 1,0 mm (hole diameter)/1,7 mm (pad diameter). The prototyping area and the whole board are golden plated.



Figure 3. Prototyping area placement

Standard footprints

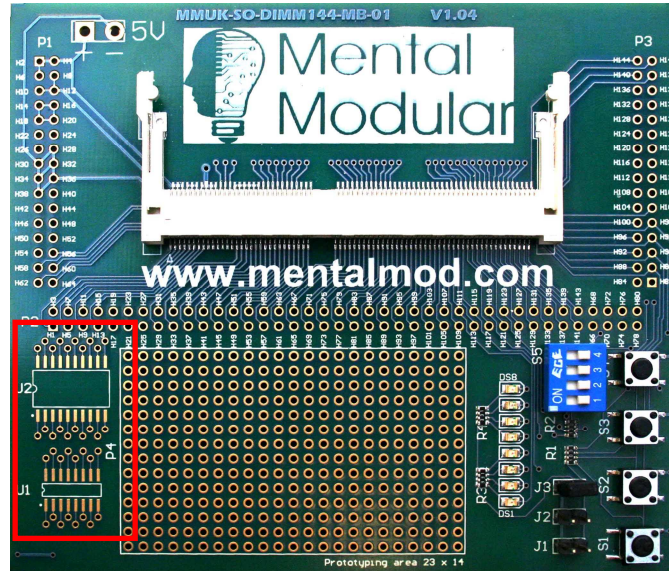


Figure 4. Standard footprints placement

There are two standard footprints on the board – SOP20 and SO16. The pads of these footprints are routed to some vias. The user could use those footprints in order to solder chips with SOPxx or SOxx footprints on the MMOD-UK-SO-DIMM144-100 board.

LEDs

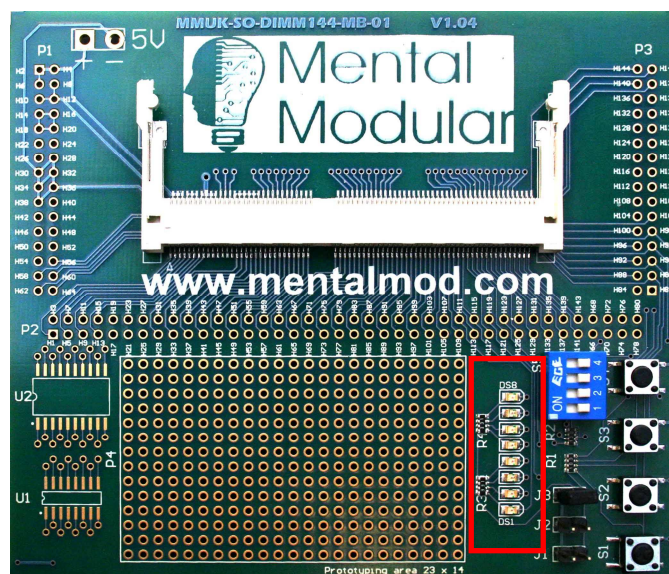


Figure 5.

There are 8 red SMD light emitting diodes (LEDs) in 0805 package connected to the slow outputs of the first serial-in parallel-out shift register on the embedded module put in the SO-DIMM144 connector.

Buttons and 4-way DIP switch



Figure 6. Buttons and DIP switch placement

There are four push-buttons and one four way DIP switch connected to the first parallel-in serial-out shift register on every embedded module plugged into the SO-DIMM144 connector. The buttons are connected to the first four inputs of the shift register, and the DIP switch is connected to the next four inputs of the shift register.

Jumpers

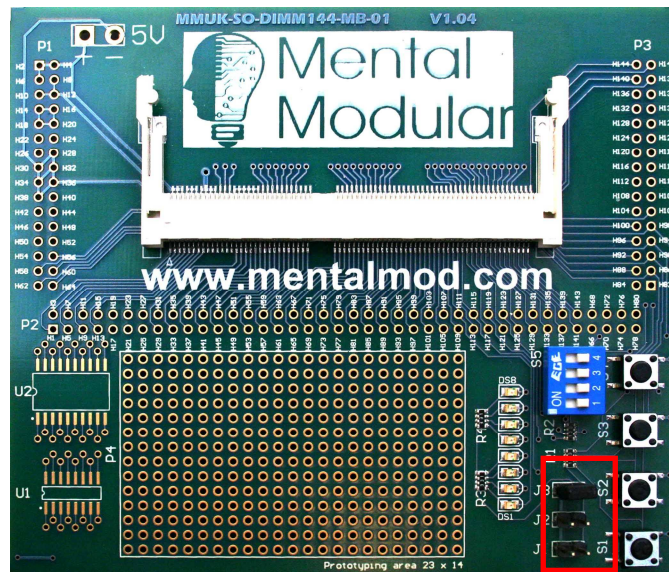


Figure 7. Jumpers placement

The three jumpers – J1, J2 and J3, are placed in the down left corner of the board as shown in the figure above.

J1 – disconnecting this jumper, the user switches off the power supply for reading the tact buttons.

J2 – disconnecting this jumper, the switches off the power supply for reading the four-way DIP switch.

J3 – disconnecting this jumper, the user switches off the power supply of the LEDs.

Silicon buffers

There are five silicon buffers on the bottom side of the board. The board is equipped with these silicon pads in order to be stable and isolated from the working table. Four of the buffers are placed at the corners of the board; the fifth one is placed in the center of the board.



Figure 8. Silicon buffers on the bottom side of MMOD-UK-SO-DIMM144-MB-100

Schematics

Below you could find the board schematics.

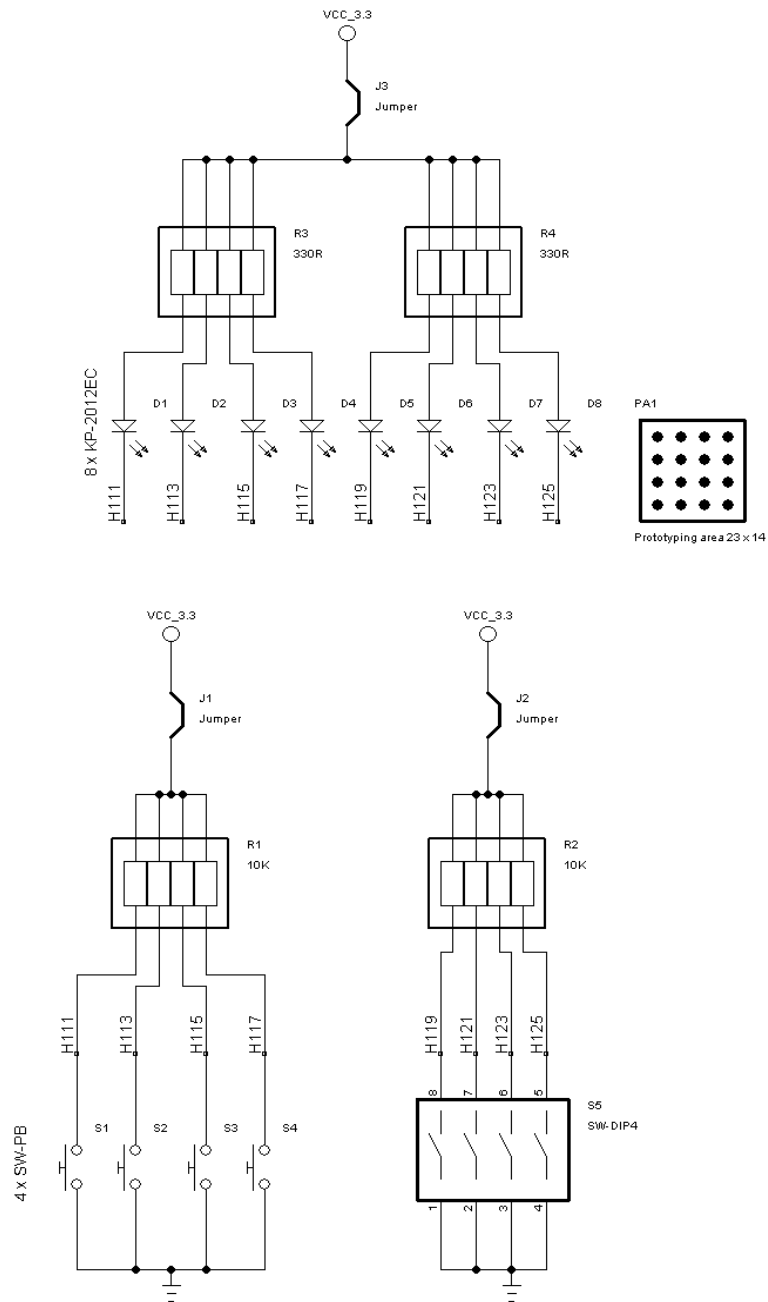


Figure 9. LEDs, prototyping area, push-buttons and DIP switch

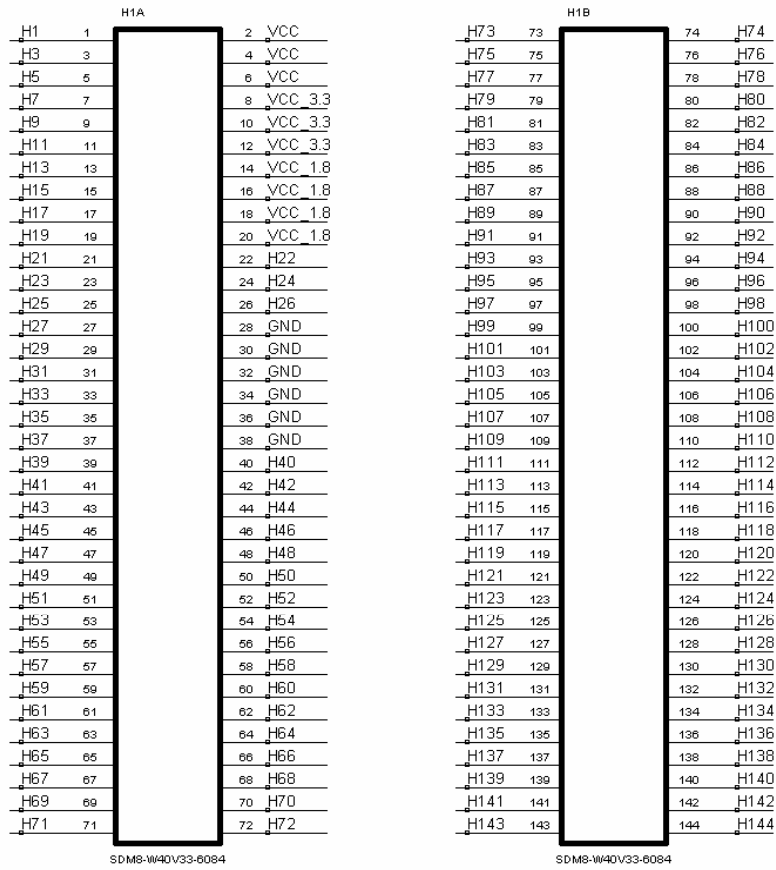


Figure 10. Connectors