



**MMOD-DT-ARMJTAG-LPT-100**  
**Wiggler compatible ARM debugger**  
***Datasheet***

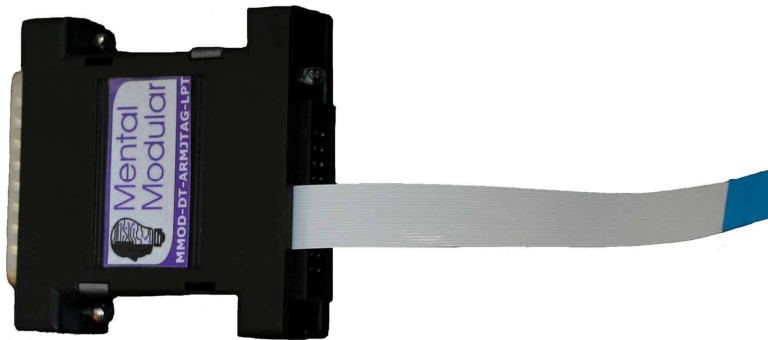
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## History

Version	Date	Author	Changes
01.00	18/02/2007	MM99 <a href="mailto:mm99@mentalmod.com">mm99@mentalmod.com</a>	Initial version.
01.01	16/05/2007	MM99 <a href="mailto:mm99@mentalmod.com">mm99@mentalmod.com</a>	Document template changed. Device picture added.
01.02	16/06/2007	MM99 <a href="mailto:mm99@mentalmod.com">mm99@mentalmod.com</a>	Typing error fixed.

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## Introduction

**MMOD-DT-ARMJTAG-LPT-100** is a very low-cost wiggler compatible ARM JTAG debugger. This device connects the target microcontroller/microprocessor through the JTAG port of the chip, on the other side the device is connected to the parallel port of a host – IBM compatible PC.

The device should work with all ARM7 and ARM9 microcontrollers/microprocessors, but it is tested only with NXP LPC210x, LPC213x, and AT91SAM7Sx microcontrollers, if you have any problems with other devices, please don't hesitate to contact us at [support@mentalmod.com](mailto:support@mentalmod.com).

## Key features

- Connects to the PC through the parallel (LPT) port
- No external power supply necessary, the board is powered from the target board power through the programming connector
- LED indicating power supply presence
- Dual target board interface – 1. Mental Modular’s proprietary cable for connecting to the programming/debugging connector placed on all ARM based embedded modules manufactured by the company (cable ordering code is **MMOD-AC-FPC05P20-001**). The debugger comes equipped with such a cable; 2. Standard 20-pin ARM connector, 2x10 pins with 0.1” pitch. Note that this interface is *optional* (if you want to use it you should order a cable adapter with ordering code – **MMOD-AC-20P20P01I20CM-001**).
- Wiggler software compatible
- Supports all ARM7 and ARM9 devices; tested with LPC210x, LPC213x and AT91SAM7Sx
- Very low-cost

## JTAG connector layout

As mentioned above the device has dual target board interface. The standard interface, the device comes equipped with is a 20 pin flat flexible cable with 110 mm length. The signal layout of this cable is given in the figure below:

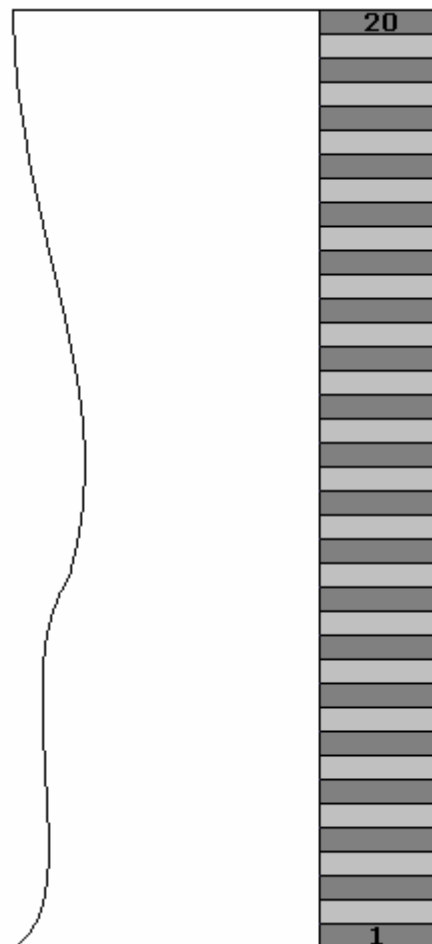


Figure 1. Flat flexible cable signal layout

The other target board interface of **MMOD-DT-ARMJTAG-LPT-100** is a standard 20 pin header connector for connecting a standard 2 x 10 pin JTAG cable with layout recommended by ARM. The header layout is shown below:

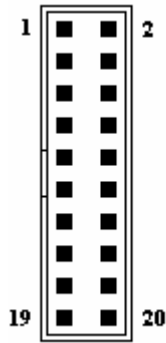


Figure 2. Standard 2 x 10 pin header layout

JTAG cables signal assignment is given in the following table:

Pin number	Signal description
1	Vcc
2	Vcc
3	TRST
4	GND
5	TDI
6	GND
7	TMS
8	GND
9	TCK
10	GND
11	RTCK
12	GND
13	TDO
14	GND
15	RST
16	GND
17	DBGRQ
18	GND
19	DBGACK
20	GND

Table 1. JTAG cable signal assignment

## Accessories

### **MMOD-AC-FPC05P20-001**

**MMOD-DT-ARMJTAG-LPT-100** comes equipped with a cable like this. Cable length is 110 mm.



Figure 3. MMOD-AC-FPC05P20-001 view

### **MMOD-AC-20P20P20CM-001**

This cable adapter is optional and if the user wants to use such a cable, he has to additionally order one. If the user uses this debugger with one of the Mental Modular's ARM based embedded modules he will never need such a cable because all those modules have flat flexible cable connectors for use with the MMOD-AC-FPC05P20-001 cable. Cable length is 200 mm, the pitch is 0,1".

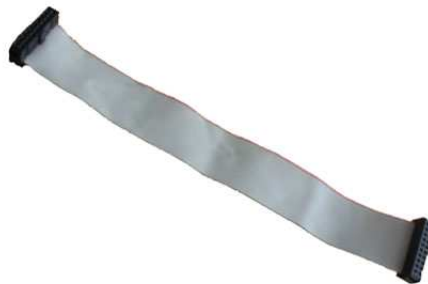


Figure 4. MMOD-AC-20P20P01I20CM-001 view

### **MMOD-AC-LPTCAB-001**

This is a LPT extension cable. The length of the cable is 2m.





**Figure 5. MMOD-AC-LPTCAB-001 view**