

ARM-JTAG Wigglerâ COMPATIBLE DONGLE FOR PROGRAMMING AND DEBUGGING

Features:

- program LPC2000 family and other (tested with OKI ML674000) ARM flash microcontrollers
- uses ARM standard 2x10 pin JTAG connector
- no need for external power supply, all power is taken from the target board
- compatible with Rowley's CrossConnect, IAR EWARM and GCC (OCD) software for programming, real time emulation, debugging, step by step program execution, breakpoints, memory dump etc everything all high priced emulators do
- dimensions 50x40 mm (2x1.6") + 20 cm (8") cable

Supported devices:

Philips Semiconductors Inc . LPC2000 16/32-bit ARM7TDMI-S™ family, OKI Semiconductors ML6740016/32-bit ARM7 family.

It should work with all other ARM7 and ARM9 microcontrollers, but this is not tested.

JTAG interface:

The JTAG connector is 2x10 pin with 0,1" step and ARM recommended JTAG layout. PIN.1 is marked with square pad on bottom and arrow on top.

JTAG signals description:

PIN.1 (VTREF) Target voltage sense. Used to indicate the target's operating voltage to the debug tool.

PIN.2 (VTARGET) Target voltage. May be used to supply power to the debug tool.

PIN.3 (nTRST) JTAG TAP reset, this signal should be pulled up to Vcc in target board.

PIN.4,6, 8, 10,12,14,16,18,20 Ground. The Gnd-Signal-Gnd-Signal strategy implemented on the 20-way connection scheme improves noise immunity on the target connect cable.

PIN.5 (TDI) JTAG serial data in, should be pulled up to Vcc on target board.

PIN.7 (TMS) JTAG TAP Mode Select, should be pulled up to Vcc on target board.

PIN.9 (TCK) JTAG clock.

PIN.11 (RTCK) JTAG retimed clock. Implemented on certain ASIC ARM implementations the host ASIC may need to synchronize external inputs (such as JTAG inputs) with its own internal clock.

PIN.13 (TDO) JTAG serial data out.

PIN.15 (nSRST) Target system reset.

PIN.17 (DBGRQ) Asynchronous debug request. DBGRQ allows an external signal to force the ARM core into debug mode, should be pull down to GND.

PIN.19 (DBGACK) Debug acknowledge. The ARM core acknowledges debug-mode in response to a DBGRQ input.

JTAG connector layout:

| ARM_JTAG | | | | |
|----------|----|---|---|-----------|
| VREF | 1 | - | - | 2 VTARGET |
| NTRST | 3 | - | - | 4 GND |
| TDI | 5 | - | - | 6 GND |
| TMS | 7 | - | - | 8 GND |
| TCK | 9 | - | - | 10 GND |
| RTCK | 11 | - | - | 12 GND |
| TDO | 13 | - | - | 14 GND |
| RST | 15 | - | - | 16 GND |
| DBGRQ | 17 | - | - | 18 GND |
| DBGACK | 19 | - | - | 20 GND |

(PCB TOP VIEW)

PCB design considerations:

Use single point to point connections between ARM core and JTAG connector. The length of all tracks must match to within 2-3 cm (1"). JTAG connector should be placed as near Arm core as possible. If lines are longer than 5 cm (2") they should be series terminated at device end with series resistors equal to the characteristic impedance of the PCB tracks and the connector.

Ordering codes:

ARM-JTAG - assembled and tested