# Adding the JTAG connector at external side of Mini-ITX case

For this guide an MHero-S-R Mini-ITX case have been used.

# Preparing the mini ITX case.

- **1.** First remove the upper metal lid of your case. To be this possible unscrew the back center bolt, and slide back the lid.
- **2.** After remove partially the front plastic fascia, pressing gently the internal 6 plastic ears. Leaned as is there with the cables connected in the main board.
- **3.** Remove the small plastic cover in right side of fascia. Now you can see the two empty holes, from the previous removal of the unneeded Molex and SATA connectors. For our purpose we will use the bottom large rectangular slot.
- **3a.** In case that you haven't remove the Molex and SATA connectors as described on the "30/12/17-001" guide, please unscrew and remove the lower one.

### Preparing the JTAG connector

- **4.** If you see carefully the Molex connector in the 4-wire supply cable, is placed inside a plastic adapter. This adapter is what you need.
- **5.** So first catch the front side of plastic adapter gently in a vise. After pull the cable pressing simultaneously the 4 plastic holders with a screwdriver, as to remove the Molex connector.
- **6.** Prepare a 10 conductor ribbon cable with a length of 30cm.
- **7.** Buy also a 10-pin IDC male connector for PCB, and solder their pin Nr *1-2-3-4-5-9-10* with the corresponding of cable.
- **7a.** Identical is to buy a 10-pin IDC male connector for flat cable, but isn't common. In this case just grasp the ribbon cable as is in the connector.
- **8.** Buy a 10-pin IDC female connector for flat cable, and grasp it in the other end of ribbon cable. Attention should be given to be in correct polarity with the first one.
- **9.** Pass the 10-pin female connector within the front side of plastic adapter, till the other side with the 10-pin male connector pass inside this. Now keep it in its position and use hot melt glue from the back side (ribbon cable) as to fix. Give 5 minutes to the hot glue to cool.

#### **Assembly**

- **10.** Pass the ribbon cable within the slot of metal frame of your mini-ITX case.
- **11.** Fix the plastic adapter with your new JTAG connector in the corresponding hole of the plastic fascia, using the same two bolts which had been removed previously.
- **12.** Place carefully the plastic fascia back in its initial position on metal frame.
- **13.** Angle three times the ribbon cable in the right direction, till it reach above from the JTAG connector of main board. Then plug it on this.
- **14.** Close the upper metal lid of your case.

From now on, you can use the JTAG connector from the outside of your mini-ITX case, every time a firmware upgrade is needed. At the end you can place back the plastic cover to hide the connector, for cosmetic reasons.

### **ENJOY**

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