TDM V2 Startup and Test Procedure

Needed instruments and tools:

- 24 Volts power supply capable of delivering 2 Amps
- 2 wires power cable and connector Phoenix Contact 1786174 (Mouser ref. 651-1786174)
- Voltmeter
- 1 jumper 2.54mm
- A Windows machine with MCP2221 software

Procedure:

1. Change the IR3 component with the right one to solve a BOM problem on the boars (by mistake the board has a 2.5V regulator instead of 3.3V)
2. Remove the buttons S1, S2 and S3. The footprint is wrong and prevent the board to boot.
3. Change resistors R46 and R97 to 4.7k

4. Connect the power cable to J14 checking that the +24V and GND corresponds to the board signs.
5. Start the power supply and deliver 24V to the board.
6. Check the voltage on the test point P20. It should be 24 V.
7. Switch off the power supply.
8. Install the jumper on J16.
9. Switch the power supply on and check that the delivered current is ~ 0.08 A.
10. Check the test point as indicated in the table below.
11. On a windows machine install the program MCP2221, connect the USB cable to the board and start the program. Once started configure the 3 GPIO as output 0. This removes the processor reset. Alternatively remove R77.
12. Set the IN1 switch to 0101. The DIP ON side is 0 and switch 4 is the MSB.
13. Install the FPGA mezzanine paying attention that the J1 on the mezzanine corresponds to the J1 on the board.
14. Prepare an SD card using the instruction below and copy the files BOOT.BIN, image.ub and root.src in the boot partition and decompress the file TDM_v2_rootFS.tar.gz in the root partition.
15. While the board is off insert the SD card

16. Connect an USB cable to the port USB (J6) and open a terminal connecting to the just created serial port. An example could be:
> screen -U -h 10000 /dev/tty.usbmodem141401 115200
Where /dev/tty.usbmodem141401 is the serial port name and 115200 is the serial port speed.
17. Turn on the board and check that the boot completes
18. If the procedure ends without errors you should see the orange light on most left three SFP blocks turned on.
19. The board is now ready and the channels should all be active.

Prepare an SD card for TDM using a linux machine

- Insert the memory card
- Check how is seen by the system: **> ls /dev/** (could be /dev/sdb1 or similar) or check with the command **> ls dmesg -w**
- Enter in fdisk **> fdisk /dev/sdb**
- Press p to check the existing partitions
- Press d to remove all the partitions
- Press n to create a new partition
- Select it as primary
- Use the default start sector
- Set the size between 512 MB and 2 GB using the command +2G (to set a size of 2GB)
- Press a to set it as a bootable partition
- Press n to create a second partition
- Use the default start sector
- Use the default end sector to get all the remaining space
- Press w to write the modification on the SD card
- Remove the SD card and reinsert it into the reader
- Check that now linux sees 2 new devices using the command **> ls /dev/** (it could be sdb1 and sdb2)
- Format the first as FAT 32 called boot using the command **> mkfs.vfat -F 32 -n boot /dev/sdb1**
- Format the first as ETX4 called root using the command **> mkfs.ext4 -L root /dev/sdb2**