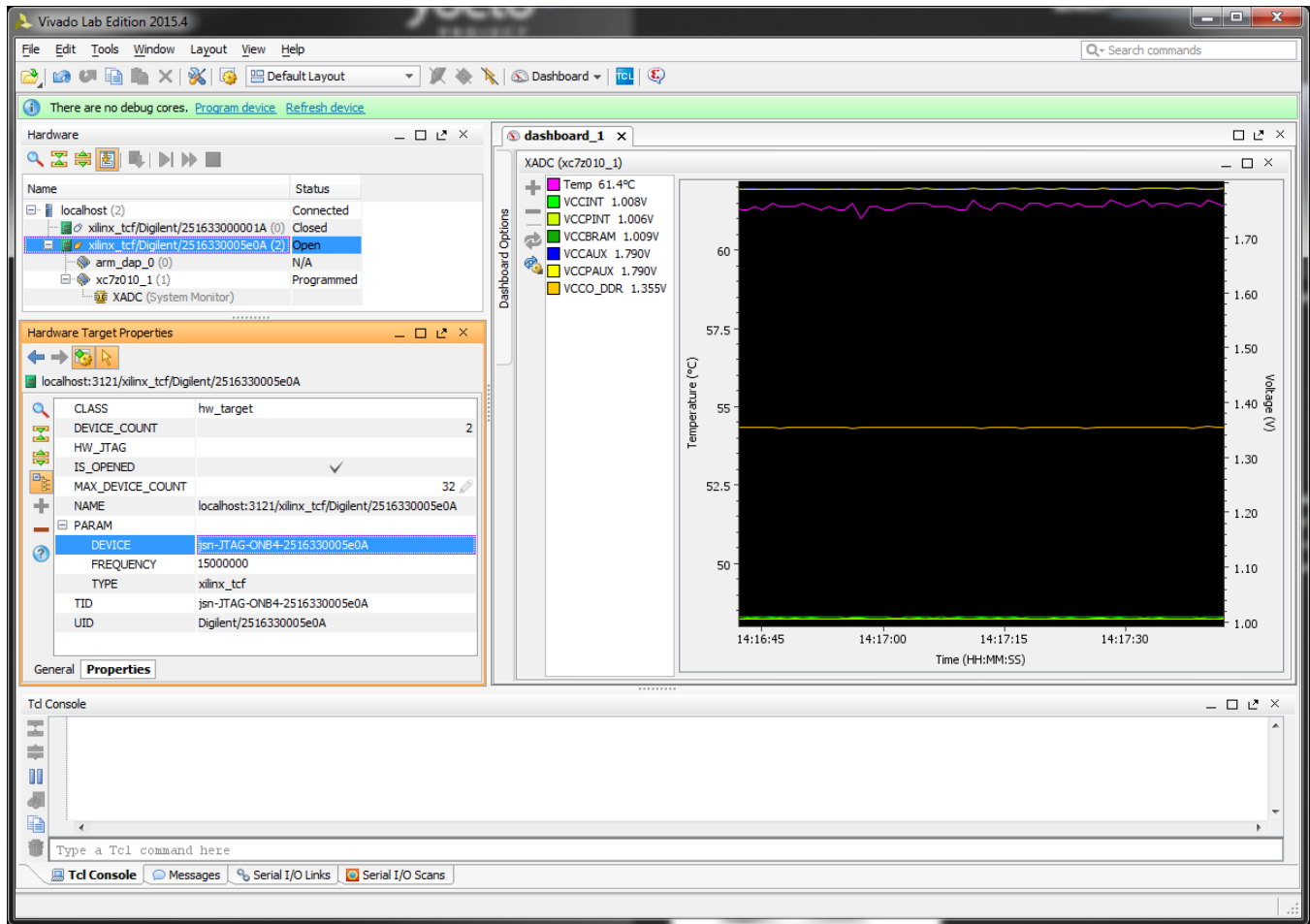# Debug

JTAG Access Vivado

Start Vivado or Vivado Labtools, and choose Hardware Manager.

Vivado Labtools screen PCB Revision 2, DDR Voltage is measured 1.35V for DDR3L, Digilent is displayed in JTAG Cable properties.
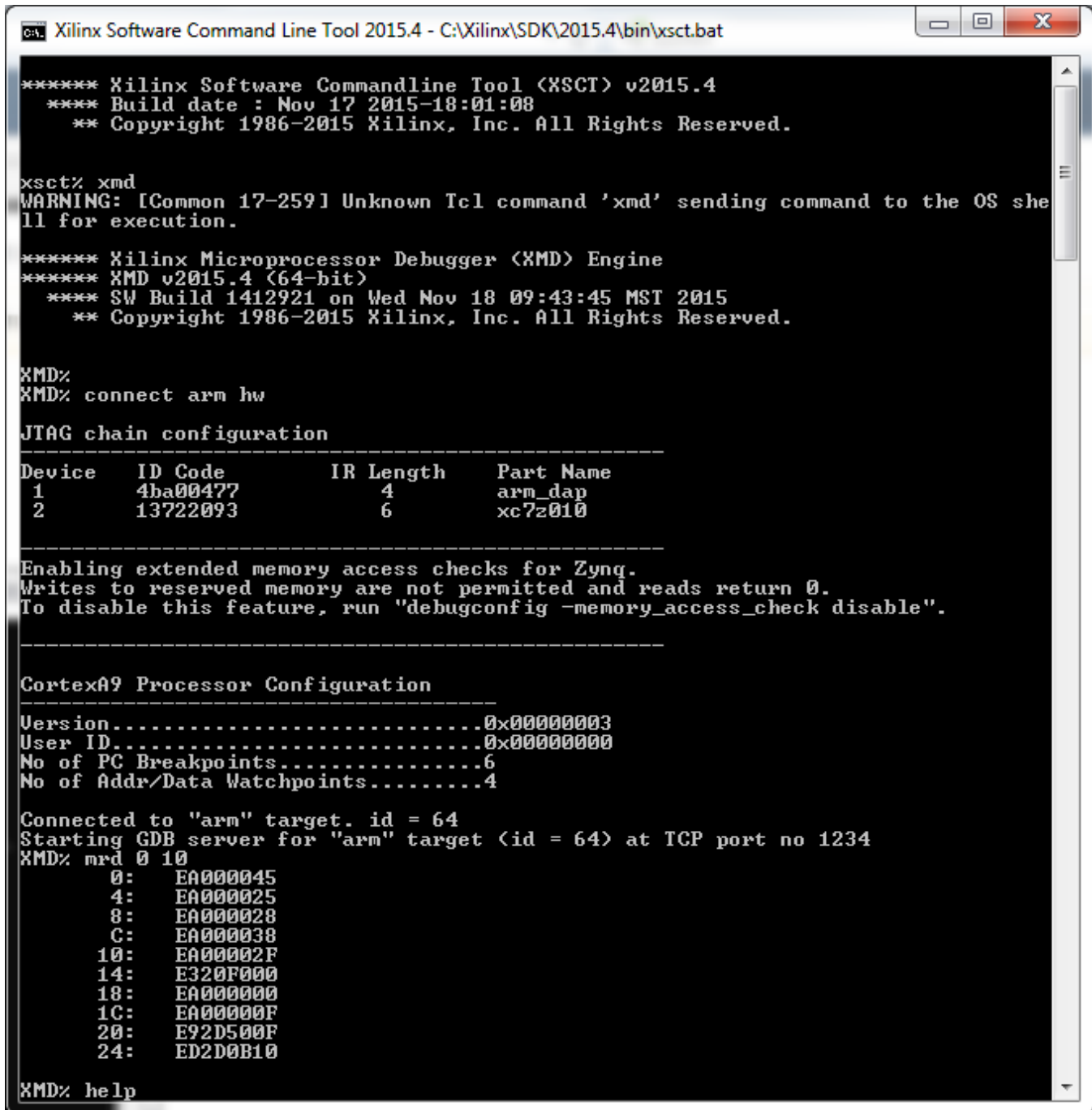
⚠️ If Linux has been booted it may happen that XADC monitor readback is disabled, in that case all the temperature and voltage readings would be invalid.

JTAG Access SDK

Console/XMD

Launch Xilinx SDK prompt, then start XMD and connect to ARM DAP

```
Xilinx Software Command Line Tool 2015.4 - C:\Xilinx\SDK\2015.4\bin\xsct.bat

****** Xilinx Software Commandline Tool (XSCT) v2015.4
  **** Build date : Nov 17 2015-18:01:08
    ** Copyright 1986-2015 Xilinx, Inc. All Rights Reserved.


xsct% xmd
WARNING: [Common 17-259] Unknown Tcl command 'xmd' sending command to the OS she
ll for execution.

****** Xilinx Microprocessor Debugger (XMD) Engine
****** XMD v2015.4 (64-bit)
  **** SW Build 1412921 on Wed Nov 18 09:43:45 MST 2015
    ** Copyright 1986-2015 Xilinx, Inc. All Rights Reserved.


XMD%
XMD% connect arm hw

JTAG chain configuration
--------------------------------------------------------
Device    ID Code         IR Length      Part Name
 1        4ba00477            4           arm_dap
 2        13722093            6           xc7z010

--------------------------------------------------------
Enabling extended memory access checks for Zynq.
Writes to reserved memory are not permitted and reads return 0.
To disable this feature, run "debugconfig -memory_access_check disable".


--------------------------------------------------------

CortexA9 Processor Configuration
-----------------------------------------------
Version.............................0x00000003
User ID.............................0x00000000
No of PC Breakpoints.................6
No of Addr/Data Watchpoints.........4

Connected to "arm" target. id = 64
Starting GDB server for "arm" target (id = 64) at TCP port no 1234
XMD% mrd 0 10
        0:     EA000045
        4:     EA000025
        8:     EA000028
        C:     EA000038
       10:     EA00002F
       14:     E320F000
       18:     EA000000
       1C:     EA00000F
       20:     E92D500F
       24:     ED2D0B10

XMD% help
```
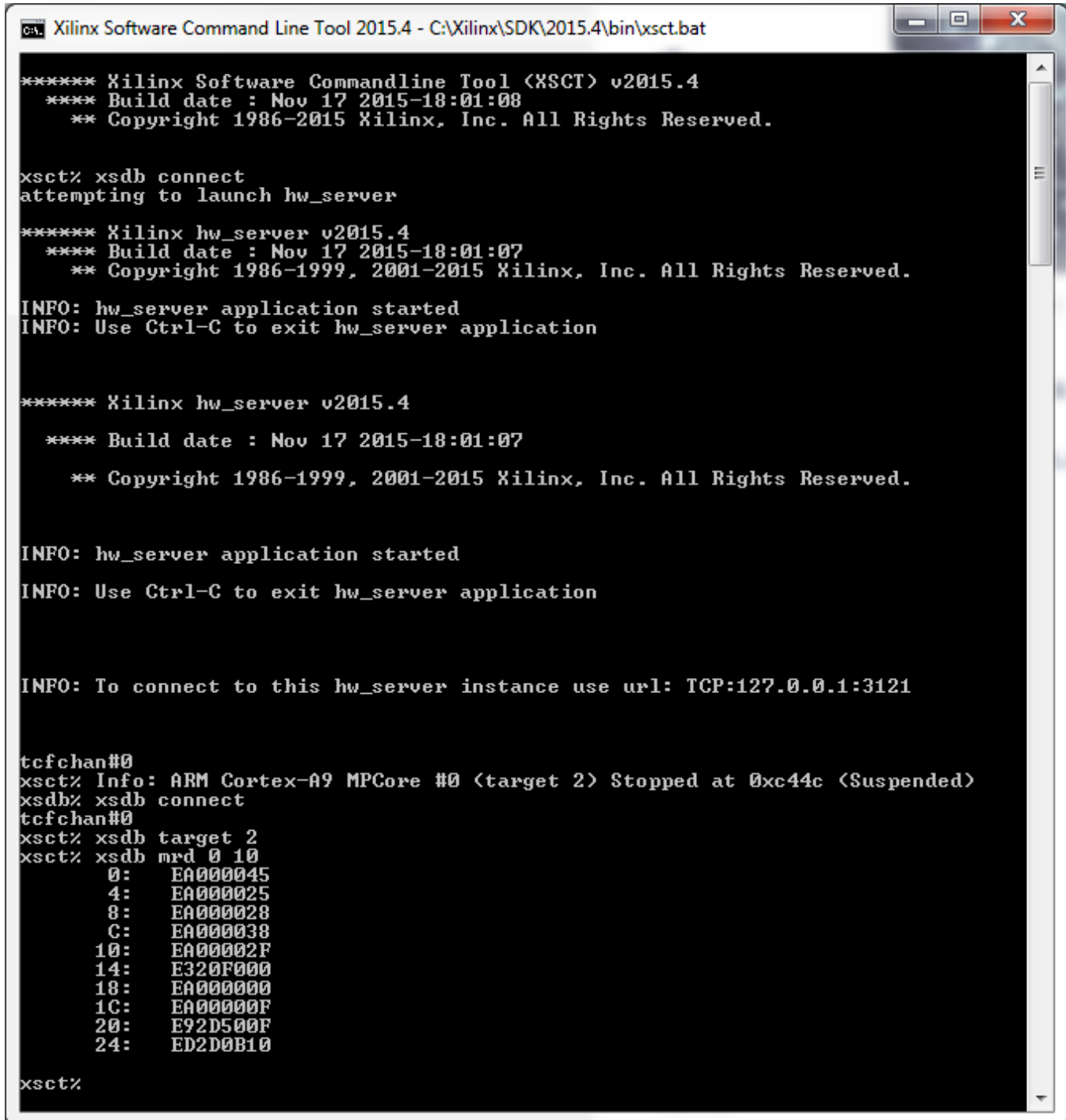
Simplest way to check ARM JTAG Debug connection, in the screenshot memory content from address 0 is dumped in hex.

Console/XSDB

Launch Xilinx SDK prompt, then use xsdb commands


```
****** Xilinx Software Commandline Tool (XSCT) v2015.4
  **** Build date : Nov 17 2015-18:01:08
    ** Copyright 1986-2015 Xilinx, Inc. All Rights Reserved.


xsct% xsdb connect
attempting to launch hw_server

****** Xilinx hw_server v2015.4
  **** Build date : Nov 17 2015-18:01:07
    ** Copyright 1986-1999, 2001-2015 Xilinx, Inc. All Rights Reserved.

INFO: hw_server application started
INFO: Use Ctrl-C to exit hw_server application



****** Xilinx hw_server v2015.4

  **** Build date : Nov 17 2015-18:01:07

    ** Copyright 1986-1999, 2001-2015 Xilinx, Inc. All Rights Reserved.



INFO: hw_server application started

INFO: Use Ctrl-C to exit hw_server application



INFO: To connect to this hw_server instance use url: TCP:127.0.0.1:3121


tcfchan#0
xsct% Info: ARM Cortex-A9 MPCore #0 (target 2) Stopped at 0xc44c (Suspended)
xsdb% xsdb connect
tcfchan#0
xsct% xsdb target 2
xsct% xsdb mrd 0 10
        0:    EA000045
        4:    EA000025
        8:    EA000028
        C:    EA000038
       10:    EA00002F
       14:    E320F000
       18:    EA000000
       1C:    EA00000F
       20:    E92D500F
       24:    ED2D0B10

xsct%
```

Reading 10 words from memory location 0