



Parallella™ Prototype System

Quick Start Guide

Rev 4.13.01.29

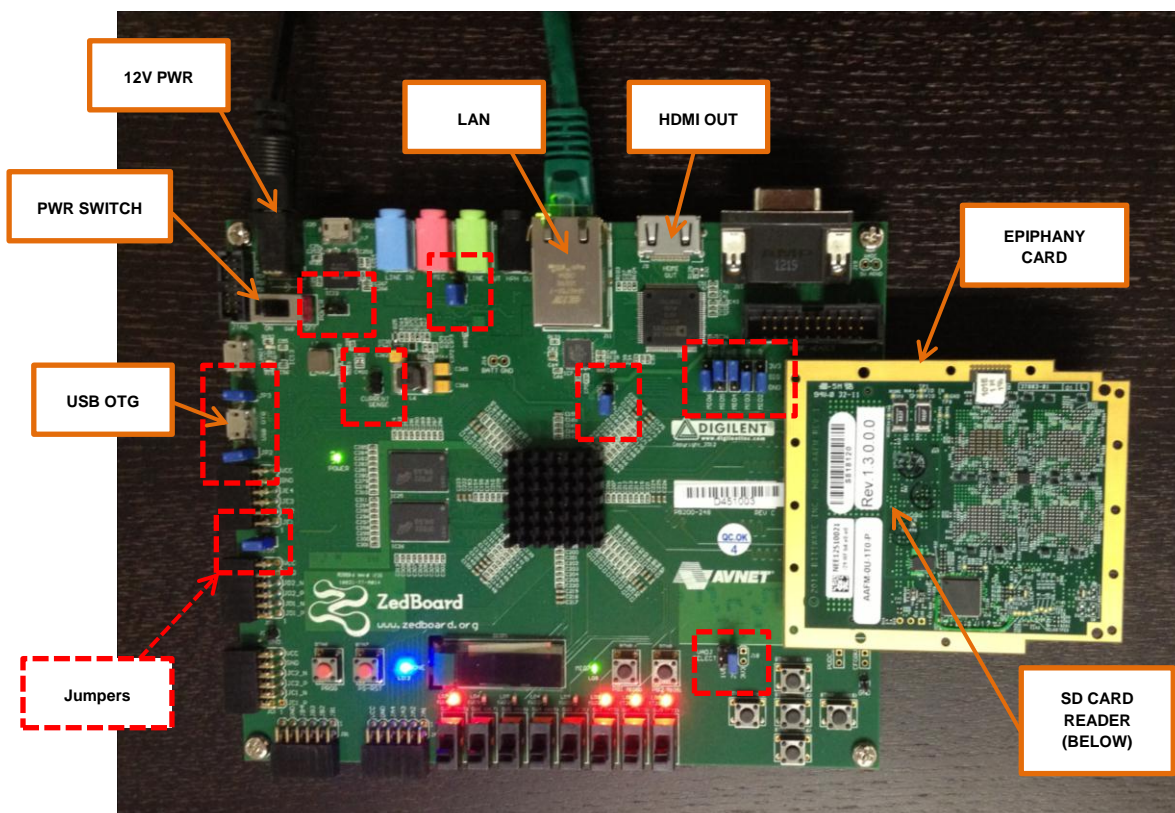


Congratulations on purchasing the Parallella Prototype system!

Your prototype system includes a 16-core or 64-core Epiphany daughtercard, a Zynq host board (ZedBoard), and a SD Card containing Ubuntu Linux O/S with the software development toolchain.

Connecting the pieces

1. Carefully unpack all hardware elements from the packaging. It is best to ground yourself before handling the Epiphany card and the ZedBoard.
2. Make sure all the jumpers are inserted in the right place (see image, and list below).
3. Insert the supplied SD Card to the card reader.
4. Mount the Epiphany card to the FMC connector of the ZedBoard.
5. Connect the power supply.
6. If you want to use the system remotely from your PC, you'll need to plug in a network cable and connect it to your LAN.
7. If you want to use the system as a standalone machine, connect a HDMI cable and use the supplied USB cable adapter, connected to the USB OTG connector, for connecting an USB hub with keyboard and mouse. Optionally, plug in a network cable connected to your LAN.
8. Turn the power switch on. The system should now look like the image below.



Testing the system

9. Log into the system by using either SSH from a remote machine, or directly, using the connected keyboard. The generic username for the Parallella systems is “linaro”, which is also the password. If you are connecting through a LAN router, you’ll need to figure out the ZedBoard’s IP address that was assigned by the DHCP server.
10. There should be a directory `/opt/adapteva/esdk` which contains the current esdk distribution. In `~/.bashrc`, the environment variables `$EPIPHANY_HOME`, `$PATH` and `$LD_LIBRARY_PATH` are updated to point to the esdk installation place. You should check that all the definitions were indeed performed accordingly:

```
$ ls -ltr /opt/adapteva/esdk
$ echo $EPIPHANY_HOME
$ echo $PATH
$ echo $LD_LIBRARY_PATH
```

11. Copy the matmul-16 example to your local work directory:

```
$ mkdir -p test
$ cd test
$ cp -R ${EPIPHANY_HOME}/examples/matmul-16 .
$ cd matmul-16
```

12. Now build the project and run the program:

```
$ ./build.sh
$ ./run.sh
```

13. If everything went fine you should now see a message similar to this:

```
Matrix: C[512][512] = A[512][512] * B[512][512]

Seed = 0.000000
Loading program on Epiphany chip...
Writing C[1048576B] to address 00200000...
Writing A[1048576B] to address 00000000...
Writing B[1048576B] to address 00100000...
GO Epiphany! ... Writing the GO!...
Done...
Finished calculating Epiphany result.
Reading result from address 00200000...
Calculating result on Host ... Finished calculating Host result.
Reading time from address 00300044...

*** ** EPIPHANY FTW !!! **
```

14. The system is now ready for developing an Epiphany application. For an easy start, follow the guidelines in the matmul-16 examples. You should find there a host application, controlling the data transfer and execution of code on the Epiphany coprocessor.
15. The “*Epiphany SDK Reference*” and “*Epiphany Architecture Reference*” provide more information regarding the eSDK and the chip hardware architecture and instruction set.
16. The “*Programming the Zynq Based System*” Application Note contains information on how to use the eSDK’s Host tools for programming a Host-Coprocessor application on the ZedBoard.

Jumper presets:

Jumper	Name	Status/Connect
JP1		open
JP2		close
JP3		close
JP6	MIO0	close
JP7	MIO2	SIG-GND
JP8	MIO3	SIG-GND
JP9	MIO4	SIG-3V3
JP10	MIO5	SIG-3V3
JP11	MIO6	SIG-GND
JP12	XADC	open
JP13		open
J21	CUR SNS	open
J18	VADJ SEL	2V5

Welcome to the world of Epiphany Manycores project development!

Copyright Notes

Copyright © 2008-2013 Adapteva Inc.

All rights reserved.

Adapteva, the Adapteva Logo, Epiphany™, eCore™, eMesh™, eLink™, eHost™, and eLib™ are trademarks of Adapteva Inc. All other products or services mentioned herein may be trademarks of their respective owners.

The product described in this document is subject to continuous developments and improvements. All particulars of the product and its use contained in this document are given by Adapteva Inc. in good faith. For brevity purposes, Adapteva is used in place of Adapteva Inc. in below statements.

1. Subject to the provisions set out below, Adapteva hereby grants to you a perpetual, non-exclusive, nontransferable, royalty free, worldwide license to use this Reference Manual for the purposes of developing; (i) software applications or operating systems which are targeted to run on microprocessor chips and/or cores distributed under license from Adapteva; (ii) tools which are designed to develop software programs which are targeted to run on microprocessor cores distributed under license from Adapteva; (iii) or having developed integrated circuits which incorporate a microprocessor core manufactured under license from Adapteva.

2. Except as expressly licensed in Clause 1 you acquire no right, title or interest in the Reference Manual, or any Intellectual Property therein. In no event shall the licenses granted in Clause 1, be construed as granting you expressly or by implication, estoppel or otherwise, licenses to any Adapteva technology other than the Reference Manual. The license grant in Clause 1 expressly excludes any rights for you to use or take into use any Adapteva patents. No right is granted to you under the provisions of Clause 1 to; (i) use the Reference Manual for the purposes of developing or having developed microprocessor cores or models thereof which are compatible in whole or part with either or both the instructions or programmer's models described in this Reference Manual; or (ii) develop or have developed models of any microprocessor cores designed by or for Adapteva; or (iii) distribute in whole or in part this Software Development Quick Start Guide to third parties, other than to your subcontractors for the purposes of having developed products in accordance with the license grant in Clause 1 without the express written permission of Adapteva; or (iv) translate or have translated this Reference Manual into any other languages.

3. THE "SOFTWARE DEVELOPMENT QUICK START GUIDE" IS PROVIDED "AS IS" WITH NO WARRANTIES EXPRESS, IMPLIED OR STATUTORY, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OF SATISFACTORY QUALITY, NONINFRINGEMENT OR FITNESS FOR A PARTICULAR PURPOSE.

4. No license, express, implied or otherwise, is granted to LICENSEE, under the provisions of Clause 1, to use the Adapteva trade name, in connection with the use of the Reference Manual; or any products based thereon. Nothing in Clause 1 shall be construed as authority for you to make any representations on behalf of Adapteva in respect of the Reference Manual or any products based thereon.

Adapteva Inc.
1666 Massachusetts Ave, Suite 14
Lexington, MA 02420
USA